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THE

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OF

MEDICAL SCIENCE.

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THE DUBLIN JOURNAL
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PART I.

ORIGINAL COMMUNICATIONS.

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ART. I.—*Acute Hæmorrhagic Ascites.*[a] By J. MAGEE FINNY, M.D., Past Pres. R.C.P.I.; Physician, Sir P. Dun's Hospital; King's Professor of Practice of Medicine, School of Physic, Ireland.

I HAVE elected to present the following case to the Medical rather than to the Pathological Section of the Royal Academy of Medicine, as the interest lies in its clinical quite as much as in its pathological aspect, and for the same reason I have designated it under the title of "hæmorrhagic ascites," as embodying its most prominent and, indeed for some weeks, its sole characteristic.

It is the only case I have met with, or heard of, in which effusion of sero-sanguinolent fluid in the peritoneal cavity was so copious as to necessitate tapping, and in which this necessity became so often imperative, and at such short intervals, if life was to be prolonged.

Mr. G., aged forty-two, married, of a healthy, clear complexion, a full build, weighing over 14 stones, came under my care on Sept. 30, 1897, on the recommendation of Thomas Parr, M.D., of Drogheda, complaining of gastric symptoms, a sense of fulness and hardness in the epigastrium, with a feeling of soreness.

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[a] Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, on Friday, November 18, 1898. [For discussion on this paper, see page 71.]

His history pointed to an active life and habits. In May last he rode 40–50 miles on his bicycle, and up to the time of his visit he rode 10–15 miles many days, and was able to walk and shoot. Indeed, in the interval of ten days which followed his visit to me, he went out partridge-shooting, and walked about eight miles over the country, although he found some difficulty in crossing the fences and ditches, and experienced pain in the epigastrium on jumping.

His habits were temperate and he lived a regular life, his only complaint being asthma, which was brought on by dust or flour, and which was immediately relieved by going out yachting.

The earliest hint of not being quite well was a sudden sickening pain and faint feeling which he experienced about two months ago, when a friend in conversation, in order to point his remarks, poked him slightly in the epigastrium with his finger; and, again, when his pet setter dog touched him in the same place with his paw to call his attention during meals to his—the dog's—wants. These slight shocks made my patient quite sick and faint. His appetite was good, and he was, both before and after he came under my care, able to eat meat, game, fish, and fruit and vegetables; and even on the day preceding his death he partook of oysters, and grouse and fruit. He experienced discomfort only from flatulency after vegetables, and if the bowels were confined. There never was vomiting or diarrhœa, or jaundice; and no blood was ever present in the alvine discharges.

When first seen his abdomen was noticeably enlarged, and was tense with ascitic fluid, and measured 43 inches above and at the umbilicus.

At his second visit, a fortnight later, his abdomen was still more tense, and measured 45 inches, while his body-weight had gone up from 14 st. 2 lbs. to 14 st. 7 lbs.

As the abdominal walls were tense as well as well covered with fat, it was not possible to palpate the organs. Percussion elicited dulness in both flanks and in the hypogastrium. On placing the patient on the left side the right flank became clear, but on reversing this position the left flank and side, when uppermost, did not give a clear note, and the dull note tended to pass up towards the spleen. Liver dulness was not increased; if anything its area was diminished.

It was now decided to relieve the distress by tapping, and on Oct. 11th 100 fluid ounces were withdrawn by siphon tube. The moment the trocar was introduced the fluid gushed out—an evidence of the great pressure it was subjected to. To Dr. Parr's and my surprise the colour of the fluid was that of blood, its resemblance to it being exact, except that it was of a slightly maroon shade. The sp. gr. of the fluid was 1,025, and on standing a soft blood-stained sediment to about one-tenth or one-eighth of the volume was formed.

It was thought at the moment of the first tapping that some blood vessel had been punctured by the trocar, but this was negatived by the even flow of equally stained fluid to the end of the operation. Under the circumstances it was thought best not to drain the cavity completely, so the trocar was withdrawn when 100 ozs. had flowed off. The measurements of the abdomen after tapping were 42 inches at the epigastrium and 43 at the umbilicus. After removal of the liquid careful examination failed to make out any tumour anywhere, or any enlargement of, or inequality on, the surface of the liver. It was noticed, however, that while the greater part of the abdomen gave a clear percussion note, the left side from the costal arch down to near Poupart's ligament remained comparatively dull.

As the fluid drained off the patient complained of soreness to the right of the puncture, and after the tapping, as before it, of a tenderness in the epigastrium on palpation or slight percussion.

It was hoped that the relief which the tapping gave would be followed by increased activity of the kidneys, and saline cathartics and diuretics were administered with a view to encouraging the urinary secretion and absorbing the ascitic fluid.

Disappointment, however, awaited us on both these points, as the urine never exceeded a pint in the 24 hours during the subsequent course of the case, the average quantity being 13 ozs., and the ascites rapidly reformed. The urine was bright and clear when passed, sp. gr. 1,025, free from sugar or albumen, and on standing deposited a heavy sediment of light-coloured lithates.

On Oct. 17th I had the advantage of Dr. Purser's opinion, and, though the ascites was rapidly reforming, we advised the postponement of tapping as long as was practicable.

It could not, however, be delayed beyond October 20th—nine days from the former tapping—as the want of sleep, the breathlessness and general distress, made it imperative. On this occasion 212 fluid ounces were withdrawn by siphon tube, and it was allowed to issue as long as it would. The nature of the fluid was identical with that of the first paracentesis. Dr. Purser kindly examined the blood-stained ascitic fluid, and failed to find anything in it beyond blood corpuscles and a few large spheroidal cells common to serous membranes. The patient felt well and in excellent spirits for a few days after each tapping; he enjoyed his meals, and went out for a drive in a carriage with easy springs, or in the electric tram to Blackrock or Kingstown—any jolting over rough ground causing abdominal pain. The pulse was usually quiet (about 90), and the temperature about normal, though in the majority of observations it lay between 97° and 98°. It touched 99° on but three evenings, and rose to 100° on the day of his death. The suspicion that the ascites was due to malignant disease and not to cirrhosis was now becoming more confirmed, while another feature, pointing in the same direction, should be mentioned—viz., after each tapping it was noticeable that the upper measurement of the abdomen was not so reduced as at the level of the umbilicus, and that the shape of the abdomen never much altered all through the course of his illness, and tapping made no difference in it. As the patient lay on his back the abdomen protruded forwards, while in the lateral directions, in contrast to what is usually the case in ascites from cirrhosis of the liver, there was no bulging of the flanks, nor was there any protrusion of the umbilicus. When very tense a few veins were visible, ramifying on the abdominal parietes, and œdema of the feet and front of the tibiæ would appear, and, later on, œdema of the scrotum and penis. These evidences of pressure became less after tapping. After the full drainage of the peritoneal cavity on 20th, the measurements were 40½ and 41 inches; but on 24th they rose again to 42 and 45 inches.

The second paracentesis of the 20th was followed by a third on the 24th, when 184 fluid ounces were withdrawn, and, five days later, on the 29th, by a fourth tapping, which produced 274 fluid ounces.

Thus, 790 ozs., or 38½ pints, were evacuated within 18 days.

The drain of this enormous quantity of sero-sanguineous fluid showed its effects by causing considerable weakness, a continued acceleration of the pulse, and dropsy of the feet and legs, which, though increased when the ascites was well marked, never disappeared after the third tapping.

The colour of the face and lips was wonderfully little altered up to this date, but pallor and a somewhat pinched look set in soon afterwards.

As each tapping gave but temporary relief to the more urgent symptoms of breathlessness on exertion, want of sleep, and nausea and sickness after food, it was determined to postpone the next tapping as long as possible, an opinion in which Dr. Little, who saw him with us on Nov. 1, 1897, quite concurred.

It became evident, however, on Nov. 5, five days later, that the heart was labouring very much on account of the diaphragm being pressed up, and the pulse became very quick, thready and irregular. The patient was clamouring for relief, and we felt that if life was to be prolonged for even 24 hours the fluid must be let out. Dr. Ball was, therefore, called in late at night, and removed 261 ozs., and the patient experienced some but not at all the usual amount of relief and bodily ease which paracentesis invariably had given him on former occasions. The heart, moreover, did not get slower, and it was apparent the vital powers of the patient were ebbing fast, and he died 40 hours afterwards by gradual failure of the circulation, and increasing coldness of the extremities, the mind being clear up to four hours before death, which occurred on Nov. 7th.

Even in the short time preceding death after the last tapping the abdomen again filled fast, and contained a couple of quarts when the autopsy was made on the 7th. Exclusive of this amount, so found, 1,031 fluid ounces—*i.e.*, 51½ pints, or 6⅜ gallons—were withdrawn in less than four weeks from the time the first tapping was practised on October 11th.

Approached from the clinical side, this case was one of no little difficulty in the matter of diagnosis, and presented many features of peculiar interest.

The presence of ascites in a man of the age of forty, who was not a total abstainer, and who at times, and on festive occasions, indulged in wine and spirits, and in whom neither cardiac nor renal disease was present, might be set down, as a general rule, to cirrhosis of the liver; and, at first, this was the diagnosis. The deep blood-stained fluid which flowed on the first paracentesis made that diagnosis doubtful, and this doubt was increased by the same coloured fluid being removed on a second tapping; and yet, on the other hand, the very rapidity with which the abdomen refilled, the large quantity of fluid which re-formed in a few days, the absence of all tumours, which had been most carefully searched for after the emptying of the peritoneal cavity, and the apparent diminution in the area of hepatic dulness examined under similar circumstances, taken with the low specific gravity of the ascitic fluid, gave probability to the view that portal obstruction might still prove to be the cause. To explain the bloody character of the fluid was not easy, and the hypothesis was suggested that the bleeding occurred from a traumatic rupture of some vessels in the mesentery or the omentum, which might have occurred in the first week of October while the patient was out shooting. In favour of such a possibility, inquiry had elicited the fact that, owing to the size and weight of the abdomen, the patient, who weighed over fourteen stone, found it hard to cross the ditches and fences, that it "hurt him in his stomach" if he jumped, and a bystander observed on one occasion that he fell, or rolled over on his abdomen, in attempting to cross a fence.

The points which made the diagnosis of cirrhosis doubtful from the first were the absence, prior to the dropsy, of gastric disturbances, such as sick stomach, dislike to food, and coated tongue; of varices on the nose; of bleeding from piles; enlargement of the spleen, hæmatemesis or melæna; and the healthy and well-nourished condition of the patient, with a cheery, bright disposition and a good appetite, which continued up to a week before his death. Another and a very significant symptom which negatived liver degeneration was the absence in the urine of biliary pigments or the purpurates, and the presence of amorphous urates in large quantities.

The absence of constitutional disturbance, fever of the hectic type, dryness of the tongue, and diarrhœal attacks excluded phlebitis of the vena portæ, tubercular disease, or perihepatitis; while the absence of glandular enlargement in the groins and neck, of disease in the rectum, and of any distinct tumour in the abdomen negatived the probability of a new growth in or under the liver causing obstruction of the vena portæ by its pressure.

There was also a point in the physical examination which was difficult of solution, and that was the unequal range of percussion dulness over the abdomen all through the course of the case. Instead of the flanks and iliac regions, as the patient lay on his back with the shoulders slightly raised, presenting an equally dull note, changing to the dependent side on change of position, in this case the right loin and iliac region were comparatively resonant and the left dull on percussion, and this dulness extended up towards the left hypochondrium in the mammary line, and did not change on turning the patient on his right side.

Having thus discussed the features of the case from a clinical point of view, I may say that each tapping after the first made us more sure that the cause of the dropsy was not the usual one of hepatic cirrhosis.

Although we had never met a similar case, nor could call one to mind, we were more and more inclined to the idea that it was a case of malignant disease involving the peritoneum, either the transverse mesocolon or the omentum.

The *post-mortem* examination was conducted under very great difficulties on the day following death, when I had the valued assistance of Dr. Purser. On making the primary incision, the parietes were covered with a considerable layer of fat, and the places where the several tappings were made were quite healed up with healthy cicatrices. A large quantity, about two quarts, of deep blood-stained fluid escaped—of the same nature apparently as that removed by tapping, but along with it a number of deeply pigmented shreds of soft consistence. The intestines were mostly lying towards the right side, and the omentum occupied the front and left side of the exposed parts, extending exactly to the seat of puncture in the middle line and to the iliac spine on the left side. It formed a thick mass, gradually shelving from 1½ inches thick at its attachment above to ¼ inch at its free border. It was solid and firm, but its consistence was such that it broke down on handling, while blood seemed to ooze from every part. The reflected part over the transverse colon was similarly involved, but the bowel itself was unaffected and bulged rather forward near the hepatic flexure, and probably caused the fulness in that region, which suggested the idea to some of those who examined the patient during life that there might be a tumour below the liver. It also accounted for the clear resonant note across the epigastrium, which was constantly present. The liver was with difficulty brought to view, as the inflated condition of the colon and the great thickening of the omentum and mesocolon pressed it back towards the spine. The organ was normal in size, its surface smooth, and its edges of natural consistence. Without a much more complete examination than we were enabled to make, it was not possible to see whether the vena portæ was compressed in the fissure of the liver, but nothing could be felt of the nature of a tumour there, and we considered that the enormous vascularity of the new growth, which extended back to the spine and involved the inferior mesenteric and other veins, was quite sufficient to explain the copious serous and sero-sanguinolent exudation which had taken place. Scattered over the intestines, in isolated spots, and on the parietal peritoneum above the pubes, were seen a number of secondary growths—some the size and colour of drops of tallow or fat, others larger—without surrounding vascularity; they were readily detachable, and did not leave a broken surface. The spleen was very slightly enlarged.

Dr. Purser, who has kindly examined a portion of the omentum, considers the growth to be of "a sarcomatous nature, although the structure varies a good deal. The great number of newly-formed, very thin-walled vessels is interesting; also the abundant growth of cells from the walls of the vessels. Indeed the tumour seems chiefly to grow from the vessel wall." It is, doubtless, to this vascularity that the exudation of blood took place, and also the effusion of the large quantity of serum which so rapidly refilled the peritoneum after tapping.

Remarks.—That hæmorrhagic ascites must be a most rare occurrence will probably be conceded by most of my hearers, as neither any of my medical *confrères* with whom I have consulted nor I myself, had ever seen or heard of such a case. It was not, however, until I looked up the literature of the subject in the Library of the Royal College of Physicians that its rarity was fully impressed upon me.

I investigated a search under the heading of "Ascites" in both scientific studies of the subject and clinical records; again under the head of "pathological diseases of the peritoneum"—and I included all kinds of malignant disease—cancer and sarcoma of the abdominal cavity, its walls or its contents—in any of which this symptom (hæmorrhagic ascites) was mentioned or referred to.

The results were largely negative. For instance, there is no case of peritoneal cancer or sarcoma recorded in the

Transactions of the Pathological Society of London up to 1897, or of its older sister in this city.

Braithwaite's "Retrospect," from 1860–1897 inclusive, and the *London Medical Record* (1873–90) are silent on the subject. In the Index Catalogue but two references are given under the heading of ascites, viz.:—Thaon, L., *Note sur un cas d'ascite hémorrhagique* (Nice Med., 1877, I., p. 198), and Bessirard (L. E. A.) *Étude clinique sur l'ascite hémorrhagique*, quarto, Paris, 1882 (unfortunately I had not the means of referring to the original papers); while under the heading of "Diseases of the Peritoneum" there is no reference made to this prominent symptom.

In the *Archives gén. de Méd.*, 1877, C. Méhu, in a paper entitled "A Study of Pathological Liquids in the Cavity of the Peritoneum," briefly refers to a case of bloody ascites in cancer of the abdominal walls, in which paracentesis was practised. In eleven days a second puncture became necessary, when the fluid removed was almost free from blood. Méhu, in speaking of the diagnosis of cancerous tumours in the abdomen, considers a notable quantity of blood in the ascitic fluid as a strong indication of such a pathological condition, but he adds the cautious qualification, that although a most grave prognosis is justifiable in the presence of such bleeding, the blood effusion may be found after death to be due to quite another cause.

Naturally my researches included the standard works of von Ziemssen's "Encyclopædia of Medicine," Trousseau's "Clinical Lectures," and Niemeyer's "Practice of Medicine," but with the same negative result.

In Fagge's "Principles and Practice of Medicine," p. 479, ascites is stated to be the most frequent symptom, and the most marked effect, of malignant disease of the peritoneum, and yet its hæmorrhagic nature is not mentioned.

My researches through the *Lancet*, *Brit. Med. Journal*, and *Medical Times and Gazette* met with little further success, as only a very few cases of hæmorrhagic ascites are reported. To these I shall allude briefly, as they show considerable diversity in the pathological conditions present, as well as in the amount and nature of the ascites.

Dr. Woodhouse[a] records a case of a man aged sixty-four who presented an emaciated, cachectic appearance, and whose abdomen was greatly distended with fluid. Fluctuation was readily detected, although the parietes were tense. There were no varicose veins visible. The urine was very scanty and thick with urates but free from albumen or bile. Vomiting was the most distressing symptom, and the patient died of exhaustion in two months. The abdomen was found to contain three gallons of sanguineous serum. The peritoneum was yellow and thick, with the omentum converted into a solid hard cake. The pylorus was narrowed, and the transverse colon was constricted by a band.

The disease, which Dr. Bristowe declared to be a colloid cancer, began in the peritoneum and extended into the intestines.

Dr. Birkett,[b] at the Newcastle Pathological Society, exhibited a case of gelatiniform cancer of the omentum, in which the latter was upwards of three inches thick, occurring in an old gentleman. The prominent symptoms were marasmus, ascites (though the nature and amount were not mentioned), and great abdominal suffering, which preceded and quickly caused death.

In bold contrast with the foregoing I would refer to another case of cancer of the omentum.

Dr. B. Fenwick[c] showed a specimen of carcinoma of the omentum—where it was 1¾ inches thick—hard and firm, but in which all the pelvic contents were matted together in scirrhus and fibrous tissue, but there was a complete absence of dropsy except in the left pleura.

Dr. Matthews Duncan[d] discusses the difficulty of the diagnosis of ascites due to malignant disease in the abdomen and in relation to ovarian disease; and gives the notes of a case—a woman, aged forty-two—in which 130 oz. of a bright red colour was drawn off, and in 18 days 70 oz. more were removed, and where the dulness on percussion was much the same after tapping as before; on exploration of the abdomen a number of soft nodules flowed out, and cancer of the uterus and ovary was found to be present.

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[a] Lancet. Vol. 2. 1861. P. 230.
[b] Med. Times. Vol. 2. 1852.
[c] Trans. Path. Soc. Lond. 1882.
[d] Med. Times. Vol. 2. 1872. P. 432.

These few references, which were all my diligent research could provide, alike speak of the paucity of the published cases, of the want of agreement in the prominent symptoms, and of the very general presence of solid tumours in intra-peritoneal malignant disease.

It will be readily acknowledged that the greatest difficulty in diagnosis arises in those very cases where tumours cannot be detected.

I shall now conclude this paper with short quotations from the writings of the few authors who have discussed the question.

Dr. Samuel Fenwick[a] has dealt with the subject more fully and exhaustively than any other writer, so far as I am aware. Under the heading of "Soft Cancer of the Peritoneum" he remarks on the presence of ascites in every case sooner or later, and that the character of the fluid was bloody in all but one of his collected cases, and he states from his experience—"Blood-stained serum is more commonly met with in this than in any other form of malignant disease affecting the peritoneum."

Tumours are necessarily always present, but in two instances they were not discovered during life, and in some others they were found only after the fluid had been removed by tapping.

"The amount of the ascitic fluid in miliary carcinoma of the peritoneum is always sufficient for recognition by ordinary physical examination," but in alluding to the difficulties of diagnosis he states—what was certainly not borne out by my case—that "ascites is less in quantity in cancer of the peritoneum than in cirrhosis of the liver; it is not so quickly reproduced after tapping, and it more often is followed by a rise of temperature and other symptoms indicating inflammation of the peritoneum."

Dr. Stokes was in the habit of teaching as characteristic of visceral cancer two main signs—(1) varicosity of the superficial veins over the abdomen; and (2) the presence of a small, though persistent, amount of ascites.

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[a] Clinical Lectures on Obscure Diseases of the Abdomen. P. 212. 1889.

Our acceptance of diagnostic *dicta* such as the foregoing must, therefore, be guarded and modified by the occurrence of cases like that of Mr. G.

Dr. Fenwick speaks also of miliary carcinoma occurring in an acute form, and mentions its being sudden in three instances, while supposed to be in robust health. He remarked that "its duration may be short—six weeks to four months.

Habershon,[a] referring to abdominal cancer as a cause of ascites, writes:—"There is an instructive class of cases in which the peritoneum is especially diseased. The serous membrane is studded with tubercles, soft and vascular, and composed of cancer cells, the mesenteric glands, and omentum sometimes are infiltrated with inflammatory and cancer products, so that it becomes thickened, contracted, and hard. It probably begins in the subserous lymphatic vessels, and extends to the serous surfaces, and may spread by contact. There is in nearly all cases a large amount of serous fluid constituting ascites, and it is often discoloured by an admixture with blood"; and he adds, when speaking of the uselessness of treatment in such cases, that "if the fluid is sufficient greatly to distend the abdomen and to press upon the stomach, it may be well to draw it off, but there is great fear that exhaustion may rapidly supervene, and that a low form of peritonitis may be induced."

From this it is plain he never came across a case like mine in which paracentesis was *imperatively* required, and where the symptom of ascites was *the* most prominent and urgent one, and called for repeated tappings, and where the fluid withdrawn was *like* blood at every tapping. Moreover, the description of the pathological state of the omentum does not tally.

Dr. Fred. Roberts, as the most recent contributor, writing in "Quain's Dictionary of Medicine," 1894, on the subject of cancer of the peritoneum, states "that it is very rarely found as a primary disease, and equally rarely is it acute; the nature of the cancer in this membrane is generally scirrhous, but may be encephaloid, while the colloid variety is very common." Virchow believes the growth to be sarcomatous.

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[a] Diseases of the Abdomen. Pp. 685–6. 1888.

"The clinical symptoms are very variable and obscure. In some cases large dropsical effusions may be present, so as to interfere with the alimentary canal, and the fluid aspirated is bloody, while abdominal pain is commonly complained of, with tenderness here and there over its surface."

"The diagnosis rests largely upon (1) the presence of a growth, with great enlargement of the abdomen; (2) the percussion dulness does not change readily with change of posture; and (3) the existence of ascites without accumulation of fluid in the flanks or protrusion of the umbilicus."

A review of the cases referred to, and of the opinions of those who have devoted special attention to this subject, cannot fail to impress one with the great difficulties in arriving at an approximate, if not an accurate, diagnosis of peritoneal and omental cancer, and places it among the most difficult in the sphere of clinical medicine. For while the occurrence of sero-sanguineous ascites is doubtless strongly in favour of it, I have shown that similar effusions may occur in cancer of some of the abdominal organs—*e.g.*, the uterus; that cancer of the omentum may occur without ascites, or that if ascites be present it need not be bloody; that the presence of tumours, one or more, which may often be not recognised until after tapping, is a decided aid to diagnosis, but that in the absence of this aid, where either no tumour exists, or where it is of the soft, diffused character involving a large portion of the omentum and meso-colon, but leaving the colon intact, such as happened in my case, an accurate diagnosis cannot be arrived at without ocular inspection, or tangible evidence as to the state of the peritoneum and the contents of the abdomen.

ART. II.—*The Operative Treatment of Hernia.*[a] By J. S. M'ARDLE, F.R.C.S.I.; Surgeon to St. Vincent's Hospital, Dublin.

IT may be said that finality has been reached in this department of surgery; a brief review, however, of the work that has been done during the last ten years will prove how very erroneous this view is. For my part, I believe that this subject is yet in its infancy, and, brilliant as has been the work of the past, the future will eclipse even its greatest successes. In the wide field of abdominal work there is no such display of uncertainty as to method of procedure as in relation to the treatment of ruptures. In our early days the hidden methods, so useless and at the time so fatal, were said to be perfect of their kind, and it is only with equal truth that similar statements are made with reference to the procedures of to-day.

I wish first to briefly refer to the more recent methods of carrying out the operation for hernia.

INGUINAL HERNIA.

Kocher's Method.—Our latest method for the radical cure (the displacement method—Verlagerungsmethode) of hernia, in which the sac is not too large or its wall too thick, is the following:—

An incision is made above and parallel to the inner two-thirds of Poupart's ligament. The characteristically-directed fibres of the aponeurosis of the external oblique are exposed, and the hernial sac is completely isolated. Now comes the *characteristic and essential step* of our method. A small opening is made in the strong portion of the external oblique, above and external to the middle of Poupart's ligament (above and external to the region of the internal abdominal ring), and a special pair of curved dressing forceps is pushed through it—*i.e.*, through the aponeurosis of the external oblique and the muscular fibres of the internal oblique, and along the inguinal canal in front of the spermatic cord, to emerge at the external ring, where they are made to seize the fundus of the isolated hernial sac (Fig. 1), which is drawn from below upwards and outwards along the canal, and through the small opening above mentioned.

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[a] Read before the Section of Surgery of the Royal Academy of Medicine in Ireland, Friday, December 9, 1898.

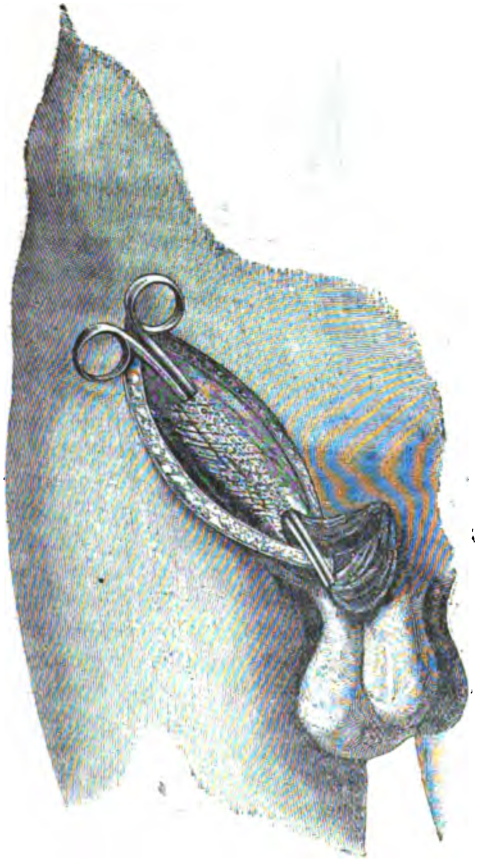

Fig. 1.—Drawing the Hernial Sac through Inguinal Canal and External Oblique.

Traction is now made upon the sac in an outward and somewhat upward direction away from the cord, and the funnel-shaped opening at the neck of the sac is drawn well into the small opening in the abdominal wall. The portion of the sac which is brought through the opening is now transfixed and stitched to the adjacent part of the abdominal wall (Fig. 2). The sac is now folded together and placed upon the *outer surface* of that part of the external oblique which forms the anterior wall of the inguinal canal, and is

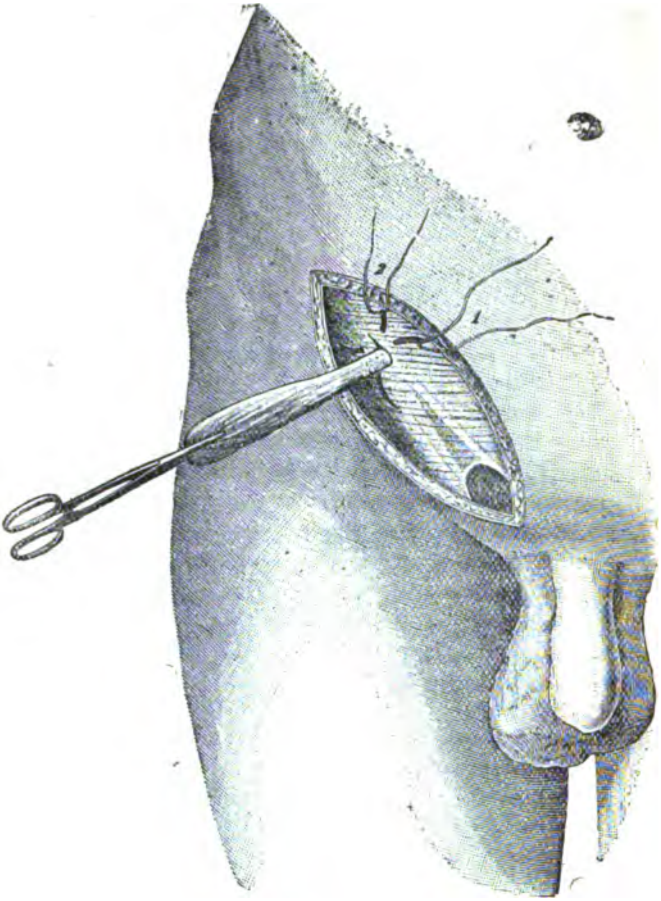

Fig. 2.—Fixing the Sac at point of Perforation of Oblique Tendon.

These Figs. show the second and third steps of Kocher's displacement method of dealing with the sac of inguinal hernia, and when combined with Macewen's suture of the conjoined tendon to Poupart's ligament under the external pillar of the abdominal ring, a thoroughly secure closure of the inguinal canal is brought about.

fixed to it by two or three sutures. The remainder of the sac is cut away. The sutures which fix the sac should take as deep a grip as possible of the upper and lower walls of the canal, and should therefore pass immediately over the spermatic cord, which is kept pulled downwards and protected by means of the finger introduced into the canal.

Ball's Operation consists in freeing the peritoneum on the inner aspect of the internal abdominal ring, and then the sac, after being isolated, is twisted into a tense cord, so as to throw the serous membrane into a series of folds, thereby producing a prominence internally rather than an infundibuliform depression. To prevent untwisting, a ligature is tied around it as high as possible, and it is also transfixed below the ligature by a thread, the ends of which are passed through the abdominal parietes.

Barker's Operation.—The neck of the sac is isolated, ligatured, and divided, the fundus being left *in situ*, whilst the thread used in tying the neck is employed as the first suture to close the deep part of the canal; by this means it is hoped that the neck of the sac will be displaced, and hence more satisfactorily occluded. It is very doubtful, however, whether this really occurs.

Macewen's Method consists in opening up the inguinal canal by dividing the aponeurosis of the external oblique, freeing the under surface of the abdominal parietes for some distance around the internal abdominal ring, and in placing therein, as a pad across the internal opening of the canal, the sac which has been previously isolated and threaded through the silk in such a way as to throw it into folds. The silk thread is then passed by means of a needle through the abdominal parietes on either side, and fixed by traversing the aponeurosis of the external oblique once or twice. The canal is subsequently closed with sutures (Fig. 3), which are passed in such a way as to draw up Poupart's ligament over the arched fibres of the internal oblique.

In *Bassini's Operation* the external oblique aponeurosis is divided, so as to expose the lower arched fibres of the internal oblique. The sac is ligatured and removed, as also any varicose spermatic veins, and the structures of the cord displaced and drawn forwards and outwards through the wound in the external oblique. The canal is completely closed behind the cord by a row of sutures, securing the lower arched fibres of the internal oblique to the under surface of Poupart's ligament. The cord is then replaced, and the divided fibres of the external oblique are sutured over it.

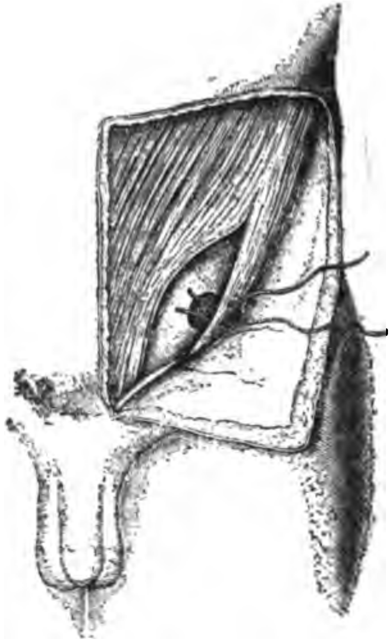

Fig. 3.

Halsted's Operation is much the same, except that the fibres of the internal oblique are also divided at the outer margin of the internal ring, and the cord displaced upwards and outwards through this opening, so that at the spot at which it pierces the abdominal parietes it may be surrounded by muscular fibres. The canal is then closed as in the former operation, whilst the external oblique is also sutured behind the cord, which is thus made a subcutaneous structure.

Method of Banks.—The sac having been made certain of is separated from the cord, and detached through the external ring up in the canal as high as the internal ring, the finger keeping note all the time of the position of the cord. If the sac is clearly empty, its neck is now ligatured with stout chromic gut or carbolised silk as high up as to leave no neck, orifice or dimple at the internal ring. The fundus is then cut away about half an inch below the ligature. As to sutures of the ring and canals, it would appear from his latest paper that Mr. Banks is now satisfied with suturing the external ring. "In inguinal hernia, in addition to this." (dissecting out and removing the sac as high up as possible "the pillars of the external ring have been pulled together by two or three silver wire sutures, which are left in position after their ends have been cut very short.

Method of Bennett.—The sac is exposed and carefully isolated from its connections just below the external ring (the lower part being left entirely undisturbed); it is then opened, and the contents reduced into the abdomen, if they have not already returned spontaneously. The sac is now divided just below the external ring, the distal portion being allowed, after all bleeding has been stopped, to drop back into the scrotum. The proximal part of the sac is next separated from the sides of the canal as high up as the internal ring by gentle manipulation. One finger (or more if the ring is large) of the left hand having been introduced into the abdominal cavity through the neck of the sac, any bowel lying near the internal ring is pressed back out of the way. An ordinary pile-needle on a handle (unthreaded) is then made to enter the abdominal aponeuroses about three-quarters of an inch above the upper margin of the external ring, a little to the outer side of its middle line, and transfixes the whole of aponeuroses and peritoneum, impinging on the end of the finger which occupies the neck of the sac. The needle, guided by the finger, is passed down the inside of the sac, and made to pierce its outer wall at a point about half an inch from the cut edge. The needle having been threaded with a tendon or catgut suture, previously prepared, and not less than twelve inches long, is withdrawn, taking one end of the suture with it. The result is that one end of the suture is seen passing into the abdominal aponeuroses above the external ring, while the other issues from the outer wall of the proximal part of the sac, near its cut edge. The needle, again unthreaded, is now made to transfix the abdominal aponeuroses and peritoneum about half an inch internal to the point at which it entered before, traversing the sac in the same way, finally piercing the inner wall at about the same distance from the cut edge as it had done on the outer side. After having been threaded with the lower end of the suture the needle is withdrawn, carrying the suture, as before, with it. The two ends of the suture will now be seen entering the aponeuroses above the external ring, and forming below a loop over the cut edge of the proximal portion of the sac. The open end of the sac is next sewn up by a continuous stitch of catgut or silk, or occluded by a silk ligature placed around it as close as possible to the spot at which the invagination suture pierces its sides. The succeeding step is the invagination of the sac, which is effected by pushing with the finger the closed end through the canal into the abdomen, the invagination suture passing through the aponeuroses being at the same time drawn tight. By this proceeding the sac is turned completely outside in, and its fundus firmly attached to the peritoneal surface of the anterior abdominal wall some distance above the internal ring."

Stanmore Bishop's Method.—This is a modification of Prof. Macewen's. The sac having been freed entirely up to, but not beyond, the internal ring, is carefully emptied, and kept so by the finger of an assistant pressing upon the ring. By means of a long, strong catgut suture, which is passed through each side of the sac, this is hemmed round, and thrown into a number of folds. The neck of the sac is then invaginated, and each end of the suture carried by a needle through the canal, and through the pillar of the internal ring nearest to it, from within outwards. When both ends are presenting through the muscular structures they are pulled up, the sac being at the same time invaginated before the finger as the threads are drawn upon. The sac is then drawn inside-out in its passage, and becomes fixed as a rounded boss exactly over the inner ring, its peritoneal surface being turned towards the intestines, and its first fold on either side being firmly applied to the peritoneum immediately within the ring. The ends of the suture are then tied firmly, but not tightly, over the ring; finally this and the canal are sutured.

M'Burney's Method.—This is different from all others described in that, instead of trying for primary union, the wound is made to heal by granulation tissue.

The sac having been reached by an incision exposing the whole canal and external ring, is separated and tied as high up as possible. The part below the ligature is then cut away. In order to keep the wound an open one the superficial are then stitched to the deep parts; next skin and conjoined tendon above; below, skin and Poupart's ligament are sutured together. The wound is then packed with iodoform gauze. The wound is thus made to fill up by granulation tissue, producing a thick scar, which M'Burney believes to be the best guard against relapse.

Cheyne's Operation.—The operation as I have described it is in its essence Bassini's, but it is not carried out exactly as he describes, in fact it is a combination of various operations. Thus the method of cutting off and tucking up the sac and the use of the silk is borrowed from Barker; the principle of bringing the internal oblique to Poupart's ligament behind the cord is Bassini's, but the mode in which the stitches are applied is borrowed from Macewen; the use of silkworm-gut for the incision in the external oblique is from Stanley Boyd; the boot-lace suture I used myself, but I find that Boyd has also used it. (Cheyne.)

A word now in reference to these procedures.

Let us first take the displacement method so vigorously advocated and so generally carried out, and we find that the latest outcome of the genius of Kocher has within itself the germs of failure, and that it requires but time to dispel the illusion as to its perfection. The great name of Kocher has secured for this procedure a position which, as an operation, it would in other circumstances have no chance of attaining. Easy of application, perfect in its immediate result, it seemed to be the acme of perfection, but when we come to study the details of the procedure closely we discover a weakness which is certain to lead to the abandonment of this method, at least in part. The principle on which operations on herniæ should be carried out is the proper reconstruction of the canals through which they travel. In Kocher's method an effectual bar is put to any such effort being made—first, by the want of free opening of the inguinal canal; and, second, by the interposition of the hernial sac between its walls. I fail to see the grounds for the substitution of this procedure for methods already extensively and very successfully carried out. The only part of Kocher's operation which I now carry out is the displacement of the sac. I object to the other steps, because, first, the suture at the internal ring is made in the dark, and any blind procedure of this kind is unsound in principle; second, the suture of the canal itself includes the external oblique tendon, and must, therefore, be faulty, as it causes the intervention of a very avascular tissue between the internal oblique and the deep aspect of Poupart's ligament.

Ball, Bennett, and Bishop in their procedures fail to recognise the one essential of a sound operation for hernia—viz., accurate closure of the inguinal canal. Devoting all their energy to the minor detail of dealing with the sac, they seem to forget that the elasticity and the capacity for sliding possessed by the peritoneum allows it to accommodate itself to any inequalities of the middle stratum of the abdominal wall, and to find out any point of weakness therein under pressure of the abdominal contents. Banks, too, depends on closure of the abdominal end of the sac, and makes no attempt at restoration of the mid-stratum of the abdomen. Notwithstanding the over-much laudation we hear of the method of Halsted, a modification of that of Bassini, I have a strong objection to it. Interfering with the course Nature originally arranged for the passage of the spermatic vessels and duct does not seem the correct way to start. My faith lies rather in the opposite course—that is, to bring the structures as nearly as possible to the line in which we find them in normal man; besides it is a matter of notoriety that the part of the inguinal canal over the pubes is not closed completely, even after making a secondary opening for the passage of the cord. Thus we have two openings instead of one, and until we have statistics reliable enough to convince us that recurrence is not more frequent after this method than after the methods we have carried out for the past 16 years, I for one shall persistently refuse to carry out this plan, unless as a demonstration for my class in the school of operative surgery. Another point I wish to accentuate is that after this operation, if there be any yielding of the abdominal wall, and truss support becomes necessary, the abnormal position of the cord prevents its use.

A word as to the statistics of these operations. I was called suddenly one morning recently to a gentleman, sixty-five years of age, who for many years had an irreducible left inguinal hernia, which he carefully preserved in a leathern purse. For some days before my visit he suffered from constipation, which had not yet been relieved; vomiting had set in during the night and was now stercoraceous. I told this gentleman that operation alone could save him. "Then I'm done for," was his reply. His opinion did not weigh with me, so I continued in silence trying to determine exactly the operation I felt certain I would be compelled to carry out immediately. Before long the reason for my patient's fear was explained. For thirty years his successive medical advisers had informed him that his heart was very bad, and that the mortality from hernial operations, even in those with good hearts, was sixty per cent. He reasoned, then, that his was a very poor chance indeed. The reasoning was sound, but where did the statistical premise come from? This gentleman went on the table full of the notion that his heart was unequal to the task I desired to impose on it, and I fear my eloquence availed little in dispelling statistical error. My scalpel has done more than my logic to for ever dispel the illusion as to his heart, and he believes with me that his advisers were only guessing at the mortality of hernia operations. You can make statistics prove anything, *provided you are easily convinced that everything is as it appears*; and after reading the reports of the different operations it is refreshing to turn to such an impartial work as that of *Keen and G. White* to find that operators of distinction are free to confess that they cannot ascertain with certainty a success of more than fifty per cent. in the radical cure of hernia.

That hernia occasionally returns, however carefully the operation is carried out, is easy to prove, but to secure that all cases which recur return to the first operator is impossible; this is why the statistics are unreliable. The statistics of mortality, however, are very different. The patient is under observation long enough to show what influence operation has for life or death, and so we can decide this question offhand when we have enough material to go on. For myself, I have long since decided that, given a patient otherwise in good health, there is no justification for any mortality, and we should be careful that our medical brethren do not quote the statistics of the anti-Listerian era, or the results of those who still elect to live in that period, as regards operative procedures.

I append a table of the cases operated on by me for the past sixteen years. Of the 342 cases operated on it will be seen that there was only one death, and that in a case of umbilical hernia in a very stout old man with a weak heart and atheromatous arteries, and at the time of operation suffering from a sharp attack of bronchitis. He died of broncho-pneumonia on the fifteenth day after operation.

The only case coming to me for operation on account of a return of the hernia was a man from Glasgow on whom I had operated eight years before. A great weight had fallen on his abdomen some weeks before his return to me, and, as he thought, reproduced the rupture. On examination I found a hernia on the right, the side of the first operation, but it was femoral, not inguinal as the first had been. In performing the radical cure I extended my incision well over the line of the former operation, and found dense scar tissue all along the canal, the overlapping pillars of the external ring being firmly united.

The mortality statistics of my cases I can vouch; would that I could be as positive as to such complete success in the matter of radical cure. I have no doubt that in many of my cases recurrence has taken place, and that my surgical *confrères* here and elsewhere have extended a helping hand to me, as I willingly do to them when occasion demands the effort. We should not, however, in estimating the value of this operation be guided solely by the number of recurrences. The condition after recurrence as compared with the condition prior to operation should also be taken into account. Judged in this way the radical cure of hernia holds one of the highest positions in modern scientific surgery.

HERNIA—*Three Hundred and Forty-two Cases of Radical Cure.*

	INGUINAL—275		FEMORAL—41		UMBILICAL—26	
	Males—255	Females—20	Females—37	Males—4	Females—19	Males—7
Intestine	186—31 congenital	11	10	1	5	1
Intestine and Omentum	44—Omentum resected in 35	5	13	1	4	2
Omentum	6	—	11	—	10	4
Appendix	16	None	None	—	—	—
Bladder	3	1	None	1	—	—
Ovary	—	1	2	—	—	—
Tumour	—	2	1	1	—	—

INGUINAL.

The method of operation which I now carry out is shown in the accompanying figures. It consists in drawing the sac upwards and outwards through the external oblique, and fixing it near the anterior superior spine, after Kocher's method (Fig. 2); then with interrupted sutures bringing the conjoined tendon down to inner edge of Poupart's ligament, so as to close inguinal canal, except at its lower part (Fig. 4). Now the outer flap of the external oblique is drawn upwards under the inner flap and fixed by suture, as in Fig. 5. The inner flap is now brought downwards and outwards and fixed to the deep fascia of the thigh below Poupart's ligament. A few silkworm-gut sutures in the skin complete the procedure.

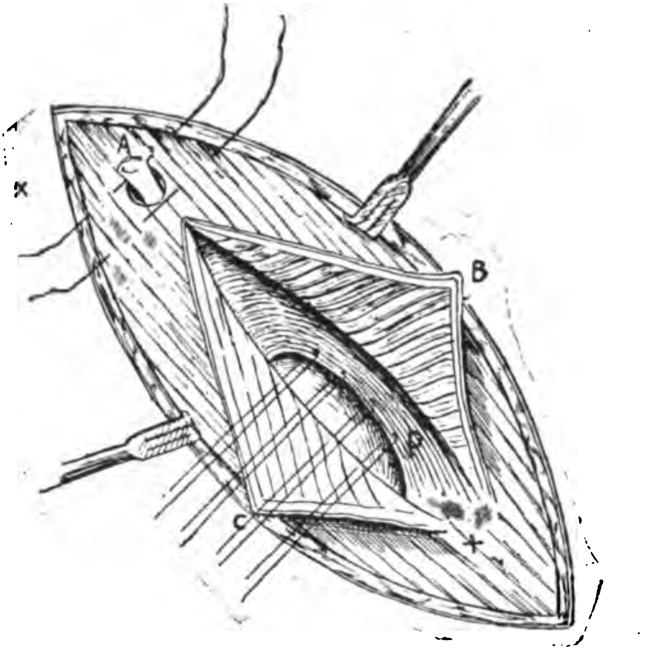

Fig. 4.

A. Sac drawn through external oblique.
B. Inner pillar of ring.
C. Outer pillar of ring.
D. Conjoined tendon

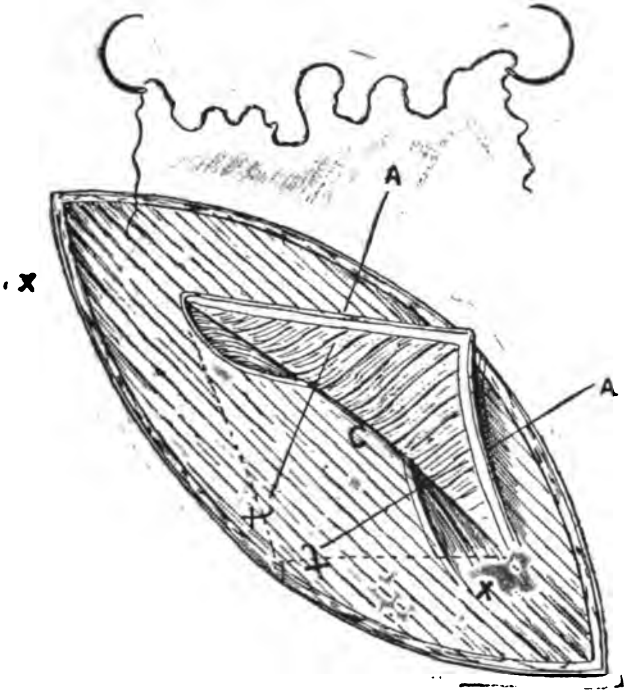

Fig. 5.
A A. Suture passed with needles, as in figure, drawing outer pillar under inner pillar.

FEMORAL.

The incision should be a semilunar one, beginning above the middle of Poupart's ligament, convex downwards, and ending a finger's breadth above the spine of the pubes; when the flap thus formed is turned up, as in Fig. 1, the femoral ring and canal are fully exposed, and plenty of room is obtained for necessary manipulations. The sac of the hernia is cut transversely an inch to an inch and a half below Poupart's ligament, and, after complete reduction of the bowel or omentum, a long-bladed clip forceps is pushed through the external oblique from without inwards, and made to come through the femoral ring in front of the sac, the mouth of which it now grasps. Traction on this brings it through the oblique muscle, as at A, Fig. 6, where it is fixed as shown. Now a suture, with a fully-curved needle at both ends, is passed deeply through the pectineus muscle, as at E E, Fig. 6. The needles are now

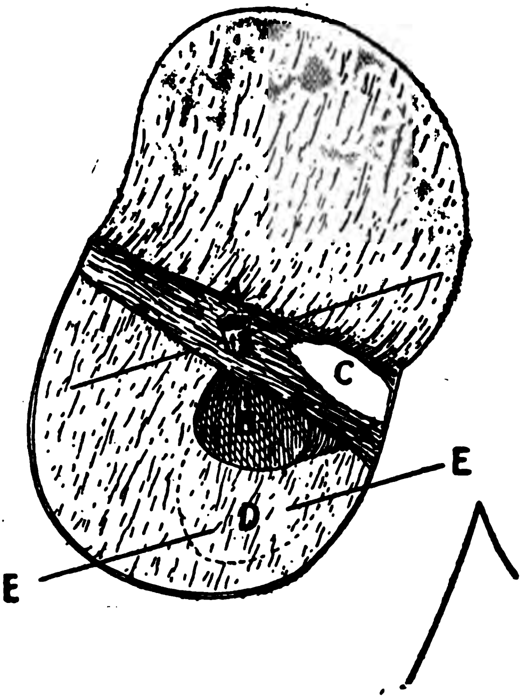

Fig. 6.

A. Sac drawn through above Poupart's ligament.
B. Neck of sac as first closing of femoral ring.
C. External abdominal ring.
D. Flap of pectineus destined to form second closing of femoral ring.
E. Sutures to bring flap D into position.

passed through the femoral canal, and made to pierce the external oblique, as at E E, Fig. 7, no traction being made on the thread for the present. At this stage all bleeding points should be secured by ligature, and all forceps removed. Next, the pectineus muscle should be cut through, as shown by dotted line in Fig. 6. and flap D drawn well inside the femoral ring to thoroughly block that opening, as shown in Fig. 7. Replacement of the semilunar flap completes the procedure, silkworm-gut or silver wire being used to fix it in position.

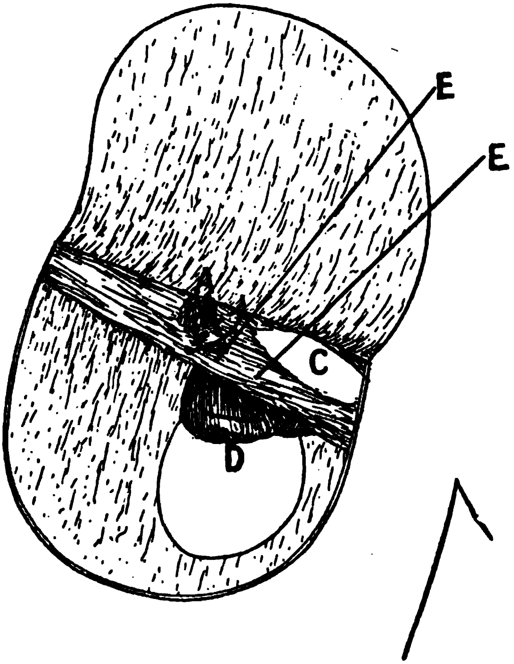

Fig. 7.

A. Sac fixed by suture.
B. Covered up by flap D.
C. External abdominal ring.
D. Piece of pectineus and pectineal fascia closing femoral ring.
E E. Suture passed above Poupart's ligament holding pectineal flap in position.

CONCLUSIONS.

1. Without opening up the inguinal canal no complete operation can be performed.

2. It is a matter of little importance what you do with the hernial sac; it has no bearing on the case, as long as you dispose of it so as to leave the inner surface of the abdominal wall perfectly smooth, since that condition is characteristic of it in the healthy subject. A new sac forms with the

greatest readiness, if at any point the mid-stratum of the abdominal wall is defective.

3. There is no evidence in favour of opposing the arrangements of Nature by displacing the cord, as in Bassini's method.

4. To properly reconstruct the canal, the internal oblique and conjoined tendon should be brought down to Poupart's ligament, not merely to the edge of the external oblique.

5. The complete overlapping of the pillars of the external ring forms a firm basis of support for the healing of the underlying conjoined tendon.

ART. III.—*Note on Lupus Erythematosus.* By H. S. PURDON, M.D.; Consulting Physician to the Belfast Skin Hospital.

DURING the last few years a good deal of attention has been directed towards the treatment of lupus erythematosus, so I may be pardoned for giving my experience as regards the steps required towards "curing" this complaint. I should say that during the thirty years that I was Attending Physician to the Belfast Hospital for Skin Diseases, some sixty cases of lupus erythematosus—all, with about three exceptions, being in females—came under my observation, and during same time about twenty-five in private practice. Several dermatologists look on this disease as tubercular, and in taking notes of the cases a history of phthisis in some near blood relation is often to be recorded. Dr. G. B. Selhorst, the Hague, Holland, whom I had the pleasure of meeting at the last Dermatological Congress in 1896, was kind enough to bring before the Dermatological Society of Amsterdam a question of mine as regards this subject, and in a letter I had from him, dated Dec. 14th, 1898, he remarks—"At our last dermatological meeting I brought the question under discussion. We all agreed that lupus erythematosus is a very common disease in our country (Holland) *except in our large towns*, and is met with frequently in combination with tuberculosis." However, as far as my experience goes, this form of lupus may or may not occur in tubercular families, but whether such be true or no, there is one fact to be mentioned as regards internal treatment, and that is, more or less debility is generally present, which, as well as the cutaneous affection, is greatly benefited by very large doses of Dr. De Jongh's light brown cod liver oil; no other kind of cod oil seems of any use. You must give it, and teach the patient to take it in large doses so as to " ooze " out of the skin. I have had the advantage in several cases of consultation with my old friend, Professor M'Call Anderson, of Glasgow, who gave me the above hint, and who also recommended iodide of starch. I never could get the patient to take the latter. I now fall back in an acute outbreak upon large doses of acetate of potassium, given in a bitter infusion; whilst locally, in the first stage, soothe affected part with Startin's zinc and calamine lotion, or glycerole of starch, or cold starch poultices, followed by the application, often repeated, of the solution of the ethylate of sodium—a remedy introduced for the treatment of nævi by the late Sir B. Richardson,[a] and which has a great affinity for water, that it must obtain at the expense of the tissue, forming a crust that holds on for about eight days. I was one of the first to suggest[b] its use in lupus erythematosus, now some twenty years ago. Painting with strong carbolic acid, as suggested to me by my friend, Dr. Allan Jamieson, of Edinburgh, is the next best outward application and not so painful;

[a] The following remarks of Sir B. Richardson may be interesting :—"In applying the ethylates, I had before me a definite object derived purely from experimental research. I found by experiment that I possessed in the ethylates of sodium and potassium bodies which, on being brought into contact with the moist living tissues, were decomposed, caustic alkali being produced and ethylic alcohol being reproduced by the extraction and decomposition of the water of the tissues. If, therefore, I inferred, I applied an ethylate to a vascular living tissue I ought to get four results on application—viz., (*a*) a removal or absorption of water from the tissue into the ethylate; (*b*) the destructive action of a caustic from the caustic soda that would be formed; (*c*) coagulation from the alcohol that would be reproduced; (*d*) prevention of decomposition of the dead organic substance that would be formed. The first instance in which the ethylate of sodium was used gave all these results, and further experience has confirmed the principle. I have a case in hand in which a large vascular growth is reduced by the ethylate to a mere dry mass of scale or scab by four applications."

[b] Journal of Cutaneous Medicine. Vol. IV.

useful when there is not much infiltration or skin thickening. It can be followed up afterwards by "massage" of face with a good lather of juniper tar soap. The internal administration of arsenic, as far as my experience goes, is unsatisfactory; whilst in the acute stage it sends out more of the eruption. Several years ago, when a distinguished American dermatologist, Dr. L. Duncan Bulkley, of New York, was in Belfast, I showed him a couple of cases of lupus erythematosus, and he suggested the internal use of Thompson's solution of phosphorus,[a] which gave good results, and is superior to arsenic.

The late Sir Erasmus Wilson ("Diseases of the Skin." 6th edition), placed this form of lupus in the class of scrofuloderma. His views are summed up in a few words, viz.:—"Lupus erythematosus is distinguished from all other affections of the skin by its maintenance of a circumscribed erythematous form; its obstinate persistence; the atrophy of the surface that ensues; its sordid appearance; and the presence of a permanent cicatrix in parts that have healed."

After ichthyol had been introduced as a remedy for cutaneous diseases I gave it a trial. As an external application I cannot say it gave any results either good, bad, or indifferent. Any curative properties it possesses, I hold, must be due to the sulphur contained in the preparation; and if we want a better but old-fashioned remedy for a chronic cases of skin disease, the iodide of sulphur is much superior, given in a pill, say in grain doses, whilst locally it can be used in the form of an ointment from ten grains upwards to one ounce of vaseline. A former Dublin physician and fair dermatologist, the late Dr. Neligan, remarked "that the iodide of sulphur used both outwardly and internally" in chronic "skin diseases was very favourable" ("Medicines and their Uses," &c.).

[a] Free Phosphorus in Medicine. By J. Asburton Thompson. 1874.

ART. IV.—*Public Health and Preventable Disease in the Counties of Cork, Kerry, and Waterford.* By PATRICK LETTERS, M.D., D.P.H.; Fellow of the Royal Academy of Medicine in Ireland; Fellow of the Royal Institute of Public Health; Fellow and Member of Council of the British Balneological and Climatological Society.

DURING a statistical inquiry into child mortality in Ireland with which I some time ago occupied myself, I was struck with some remarkable differences in their infantile death-rates between individual counties and also between towns, where, *a priori*, no great inequalities were to be expected. In many instances explanations were found in the greater or lesser degrees of urbanisation existing, and I concluded, from analyses of the death-rates, that, generally throughout Ireland, child-life was less secure in towns—in the smallest even—than in exclusively rural districts. In some cases, however, the want of knowledge of local social and sanitary conditions rendered it impossible to explain divergements. Sir Charles A. Cameron, in his Presidential Address at the opening of the Congress of the Royal Institute of Public Health, recently held in Dublin, said that "Many sanitarians regard the infant death-rate to be, as a measure of the salubrity of a district, almost equal to that afforded by its fever mortality." This statement, true in the abstract, would carry still greater force if the infant death-rate be interpreted as the rate at which children under the age of five years die. The more usually accepted meaning of the term is, however, the rate at which infants under the age of one year die proportionately to every thousand born within the same period. As a test of the public health of a community this is, I think, not so reliable as the death-rate under five. The deaths of infants under one year oftentimes throw valuable light on the social depravity of communities; they point to the conditions which unfavourably influence infant life in large industrial centres; they may even indicate, with tolerable accuracy, the unnatural treatment and neglect of infants associated with domestic vice. Owing, however, to the more limited operation of communicable diseases at the earliest stage of life, the true infantile death-rate lacks that value as a sanitary test which the deaths of all children under five possess. This is very well exemplified in a paper by Dr. W. Langford Symes, F.R.C.P.I., on the "Mortality of Children in Ireland," published in the *Medical Magazine* for June, 1898. This paper is valuable for two reasons—(1) it embraces a whole decade of infantile statistics, and (2) it tabulates separately the deaths under one and five years of age. While every registered cause of death is included in each table, the *grand* causes of child mortality in Ireland are grouped under eleven headings in the order of their relative destructiveness of life. Diarrhœa, whooping-cough, and measles appear in both tables, but not in the same relative places. In the younger age-group, measles, for example, stands as tenth on the catalogue of causes of death with 1,691 deaths in ten years. In the age-group under five it comes seventh with 7,557 deaths in the same period. It is interesting to note that such preventable diseases as scarlet fever, diphtheria, phthisis, enteric fever, simple cholera, simple fever, small-pox, and typhus find no place amongst the eleven principal causes of children's deaths in Ireland, either under one or five years of age. It would seem, therefore, that the best indication of the sanitary condition of a district in Ireland is to be had by comparing the several death-rates—the general death-rate, the true infantile rate, the rate under five, and the zymotic rate, or, better, that due to the whole group of diseases now regarded as preventable by hygienic measures.

When dealing with preventable disease statistically we must clearly define what the term includes. It is not possible, nor will it ever be, to determine the precise proportion of the diseases afflicting mankind that originates from preventable causes. We only know that it is and ever has been, in all countries, enormous. The errors of life, and the defiance of or indifference to those physiological laws which govern health, perennially flood our public hospitals and the consulting-rooms of our physicians and surgeons with sufferers from diseases, an immense proportion of which are of preventable origin. Within the Victorian era—mainly within the past quarter of a century—many endemic and epidemic diseases formerly attended with fearful mortality have been greatly subdued by the modern science of Preventive Medicine. Having regard to what has been already achieved, and to the scope and direction of present-day public health operations, preventable disease, for my purpose, comes conveniently under eleven headings as follow:—Small-pox, measles, scarlet fever, typhus, influenza, whooping-cough, diphtheria, enteric fever, diarrhœa, tabes mesenterica, with tubercular meningitis, and phthisis.

These are the diseases against which modern sanitation contends in our country. How they are severally distributed, where and to what extent they prevail, should be matters, not alone of universal hygienic importance, but of the deepest vital interest to the communities concerned. Indeed, without a knowledge of the haunts and habitats of these diseases, of their modes and seasons of prevalence, and of the amount of life sacrificed to them, there are wanting the necessary *stimuli* for the adoption of preventive measures, and nothing practical is done.

That this honestly represents the present aspect of sanitation in Ireland was amply demonstrated in several of the sections of the recent Sanitary Congress in Dublin. In the Section for Preventive Medicine, a resolution was proposed by no less distinguished an exponent of hygienic science than Professor W. R. Smith, President of the Royal Institute of Public Health, deploring the absence of any proper sanitary administration in the Irish counties, and calling upon the Government to rectify this by making the appointment of county medical officers of health obligatory upon County Councils. At the general meeting closing the Congress Sir Charles Cameron, who presided, expressed himself in similar terms, and a strong recommendation on the subject was adopted. Were this reform instituted, the public health in the several counties would be safeguarded by men of guaranteed proficiency in Sanitary Science or State Medicine fulfilling many functions, not the least important of which would be that of vital statisticians. As matters now stand, the only chronicler of disease and death throughout Ireland, outside a few of the large urban districts, is the Registrar-General. His compilations—invaluable though they be as national treasures and historical records—cannot supersede, for the practical purpose of disease-prevention, the current statistics which would be regularly collated by medical officers of health in Irish counties. The annual reports of the Registrar-General are available at too late a period of the year succeeding that to which they refer, and they contain no statistics of morbidity. The statistical facts in the hands of medical officers of health would have this advantage over those of the Registrar-General—they would be self-garnered from data personally verified or verifiable within their own administrative areas.

Under the existing system in Ireland the work of disease-prevention lies entirely with the poor law dispensary medical officers, whose hands—it is needless to observe—are fairly well filled with general practice. Where these officers develop a faculty for sanitary work, and find time to exercise it, good results in the way of disease-prevention become possible. Everything, however, in this department of medicine depends upon personal vigilance and tact, with which all are not equally endowed. There is the further consideration that dispensary medical officers have no incentive to devote themselves to the special branch of Preventive Medicine. As sanitary officials in their own districts they fill a useful—nay, an indispensable—place, but without county supervision and control in sanitary affairs it is vain to look forward to any material advance in our public health. In his Presidential Address to the Conference of Medical Officers of Health at the Dublin Congress, Dr. T. J. Stafford, D.P.H., Medical Commissioner of the Irish Local Government Board, expressed himself in full agreement with what I have just advanced. Here are his pithy and pregnant words.—

"I cannot help expressing my regret that the Local Government Act of 1898 had not followed the English precedent, and given our County Councils power to appoint County Medical Officers of Health to supervise the sanitary administration in each county; such officers, specially qualified, well paid, and devoting their whole time to public health work, would, I believe, be invaluable in getting sanitation properly carried out by stimulating, encouraging, and, when necessary, backing up the District Medical Officers of Health."

The Counties of Cork, Kerry and Waterford embrace an area of about 5,400 square miles, which is equal to one-sixth that of Ireland. Their combined population is also equal to about one-sixth that of the whole country. In this extensive maritime tract there necessarily are diversities of local climates, though all are insular. In the amount of vegetation, of cultivated, cultivable, and waste land, in the variety of soils as regards mineral constituents and permeability, in the natural drainage and in surface configuration there are wide differences having more or less bearing on the public health.

Having a personal acquaintance with the principal conditons affecting the public health in the Counties of Kerry and Cork, I had intended restricting the scope of this paper to preventable disease within their limits. The vital statistics of Waterford county are, however, in many respects, of surpassing interest, and for this reason it has been included. The term South Munster shall be employed when the three counties are referred to collectively. The basis of the calculations is the Report of the Registrar-General for Ireland for 1897, issued so recently as September, 1898. After dealing with the headings *seriatim*, I shall summarise the conclusions which seem warranted regarding preventable disease as a whole throughout the Counties of Cork, Kerry, and Waterford.

Small-pox.—It is gratifying to find that no death from this loathsome disease was registered in South Munster in 1897. In the efficiency with which the Vaccination Acts are enforced by the dispensary medical officers lies our main—I might say our only—protection against this fearful scourge. We are, throughout Ireland, well guarded against small-pox, although the country did not entirely escape in 1897, two deaths having occurred in Dublin, and one in Mayo. Three deaths in all Ireland from small-pox is not an unsatisfactory record. The mere existence of this disease, accompanied by so trifling a mortality, is a proof that we have it well in check in this country. In some partsof England, where organised opposition to vaccination prevails, very serious small-pox mortality has been recorded. Whether the recent modification in the English law, brought about by popular agitation, will eventuate happily, remains to be seen. In Ireland we should like to regard the "conscientious objector" as non-existent: he is so certainly as a political factor. Our vaccination laws as they stand only require energetic administration, and, unlike England, we are satisfied to remain as we are, so long as our national mortality from small-pox stands anything near last year's record.

Measles.—This disease, to a greater degree than any other of the zymotics, continues to exact its annual death-tribute unchecked. It is the opprobrium of sanitation—a standing stigma and reproach that faces us everywhere. That the ravages of this disease—in rural districts at least—can be mitigated by timely measures of prevention, is now generally admitted; but, unfortunately, it often happens that the best means are not employed until too late. Last year was an exceptionally severe one in Ireland in respect of measles, no fewer than 1,070 lives having been sacrificed to it, In the previous year 516 deaths only occurred. The average annual deaths from measles for the ten year period 1886-1895 were 885, a figure which falls short of last year's death-toll by 185.

The population of Ireland, estimated to the middle of 1897, was 4,551,723. The death-rate from measles alone was, therefore, 0·235 per 1,000 of the population. Let us now examine the mortality from the same disease in South Munster. From the official returns 185 deaths occurred, of which 163 were in the County of Cork, and 22 in Kerry, no death from measles having taken place in the County of Waterford. If we estimate the populations of these southern counties on the same scale of reduction, since the Census year 1891, as the Registrar-General applies to all Ireland, and strike calculations to bring out measles death-rates, it is found that the rate for South Munster as a whole, under the favourable circumstance of one measles-free county, slightly exceeds the rate for all Ireland. The measles death-rate of South Munster was 0·267 per 1,000 of the population. On analysing this it comes out that

Cork County stands at 0·384 and Kerry at 0·127 per 1,000 of their respective populations. In tabular form measles mortality shows thus:—

MEASLES MORTALITY TABLE.

—	Population estimated to middle of 1897	Number of Deaths registered from Measles	Measles Death-rate per 1,000 of the Population
Cork - - -	424,155	163	0·384
Kerry - - -	173,302	22	0·127
Waterford - -	95,052	0	0·000
South Munster -	692,509	185	0·267
Ireland - -	4,551,723	1,070	0·235

(*To be continued.*)

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1899, provided that an Essay deemed by the Committee of Award to be worthy of the Prize shall have been offered. Essays intended for competition may be upon any subject in Medicine, but cannot have been published, and must be received by the Secretary of the College, Mr. Thomas R. Neilson, on or before May 1, 1899. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. The Alvarenga Prize for 1898 has been awarded to Dr. S. A. Knopf, of New York City, for his Essay entitled: "Modern Prophylaxis of Pulmonary Tuberculosis and its Treatment in Special Institutions and at Home."

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

On Failure of Brain Power (Encephalasthenia): Its Nature and Treatment. By JULIUS ALTHAUS, M.D., &c. Fifth Edition. London: Longmans. 8vo. Pp. 281.

THE best chapter in this book has got no business to be there. Chapter I. deals in a leisurely style with the structure and functions of the brain, beginning with a history of opinion on this subject from the days of the Hindoo and Egyptian philosophers, and winding up with Golgi, Ramón y Cajal, and Cox. It is true that here and there Dr. Althaus "drops into" pathology and treatment in a really irritating way, gaining our confidence by a quiet discourse on anatomy, and suddenly rounding on us with a "thus we see," or some such phrase, which introduces what the surprised mind instantly challenges as a *non sequitur*. Nevertheless, for a semi-popular account of modern views on cerebral anatomy this chapter is distinctly good. It is not altogether Dr. Althaus' fault if his account of Flechsig's views is a little confused. The learned author of "Gehirn und Seele" seems to deem it necessary for a scientific treatise to be written in a style as involved as that of Kant, with the addition of Bayle's hateful arrangement, by which the text is dwarfed by a profusion of notes—some unimportant, some too important for the foot of the page. There have been many excuses made for Kant; perhaps the best is that but for his obscurity so many distinguished men would never have attained the eminence of being considered great metaphysicians for merely having filtered, clarified, diluted, and decanted him. Bayle may plead that the vastness of his materials was such that no man could have duly arranged them who had only the prospects of a post-diluvian lifetime. Flechsig cannot be forgiven, and his punishment seems to be that until some enterprising Frenchman takes to exploiting him and publishing a lucid exposition of his views he will not be understood.

We must return to Dr. Althaus, and if we have wandered too far from him he cannot complain, he sets us so poor an example of a strict adherence to the question in hand. The following passage, suddenly interpolated in the midst of anatomy, is a specimen of the sort of thing which ought not to appear in scientific books—a passage calculated to cause the enemy to blaspheme, and to say that old women's gossip forms a large part of psychiatry:—"It is interesting to find in Flechsig's researches the key for enabling us to understand that *great oratorical powers do by no means imply a commanding intellect* or a harmonious development of great mental faculties, for the third left frontal convolution does not form part of the anterior association centre. The three great orators whom I have just named have, when in power, done their countries a great deal more harm than good. Mr. Gladstone nearly succeeded in dismembering the British Empire; Gambetta's obstinacy, &c., . . . and Castellar, &c., . . . Prince Bismarck, and Lord Salisbury, on the other hand, &c." The method of decorating anatomical treatises with modern instances drawn from the political world reminds us of the distinguished Hindoo physician who, after describing the complexion in chronic jaundice, added, "A good specimen of this condition is afforded by Mr. Smith, magistrate and collector, of Bletherpore." After this specimen of our author's discretion we are not surprised at this wondrous footnote on another page:—"I have endeavoured to ascertain whether the same peculiarity existed in the skull of Richard Wagner, but have failed in gaining the necessary information from the widow of the deceased composer, whose health is at the present time very precarious." Poor Wagner! poor Madame Wagner! Is there not an echo here of the delightful humour of Teufelsdröckh, who tells us that his famous epitaph on the partridge-converting grand duke was rejected "for I know not what fault in its Latinity?"

Having dwelt upon the structure and functions of the brain for ninety pages, our author proceeds, in Chapter II., to discuss the causes of failure of brain power. One would have hoped that he would have mounted the great scaffold of anatomical and physiological fact which he had erected against the wall of the enemy's fortress, and so, therefore, one is sadly disappointed to find that he sits down before another part of the wall and proceeds to hammer a breach through heredity. He begins:—" An unstable nervous system transmitted from parent to offspring is the most powerful predisposing cause of this as well as of other neuroses." This is a clinical fact loosely stated and no scientific induction. After a short mention of some of Weismann's views and those of other theoricians on heredity, our author moralises on Cajal's reflection that the vertebrates seem to be a type of a definitely closed organisation, thus:—" As long as we are devoid of a sense which allows us to have direct communication with matter no progress can be made in such vast and at present insoluble problems as the origin of life, the nature of matter and force, &c., even if all phenomena which are accessible to our senses, aided by the most delicate instruments, should be registered, compared, and classified. If there is to be real progress it is necessary to assume that life has not yet exhausted its types; that the albuminoid and physiological properties of the brain-cell may become subservient to far higher combinations of laws than exist in the meagre and scanty structure of the *homo sapiens*, and that at some far distant time a supra-vertebrate may eventually be formed." This seems hopeful for the eventual future of nervous pathology, but not for us. We, alas! meagre and scanty as we are, can never hope to comprehend what is meant by an albuminoid and a physiological property becoming subservient to a law, or by a combination of laws existing in a structure.

Heedless of the fact that he has brought us to that precipice which, as Leopardi tells us, ends all things, our author goes bravely on and plunges *in medias res*. With a brief regret that "most people do not care about what may have happened to their more remote ancestors, or if they do, would be unable to find it out," he launches into clinical details.[a] The mighty of the earth are sadly at a discount these times, so when we find that Dr. Althaus, noting that Dr. Ireland has confined his genealogical investigations to the Russian and Spanish dynasties, proceeds to harrow us with terrible stories of moral and intellectual degradation among potentates elsewhere, we can pass by on the other side, rejoicing that Providence has kindly consented that we should not be kings or even grand dukes; but we are more nearly touched when he proceeds to describe the effects of "heredity in less exalted persons." He gives many cases of nervous invalids, of sufferers from obsessions ("imperative words and ideas"), agoraphobia, &c., in which hereditary influences were strong. He then discusses the various other causes of or influences contributing to the state he deals with. Amidst a wealth of clinical detail, often illuminated by keen observations, there are scattered fragments of pseudo-science like the following. Speaking of faulty education as a cause of failure of brain power, Dr. Althaus says:—"Every political, philosophical, and artistic school causes in its adepts a type of association of ideas, judgments, and reasoning which are so exclusive and narrow that they *must* be connected with the existence of special and systematised associations of nerve cells. These kinds of inter-cortical associations are not unfrequently antipodic *(sic)*, as shown in such contrary phenomena as materialism and spiritualism. . . . Where such systematised associations have been formed in youth . . . a definite constitution of the brain *is* the result, and to attempt to modify it would be equivalent with changing the anatomy of the brain and the individuality of the person." We have italicised two words which show the weakness of this passage. The inferential "must be" which occurs early is later changed into the absolute "is." All difficulties are susceptible of explanation by this method, but this method has been the chief cause of all error in medicine as in every other department of human thought.

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[a] "Act, act in the living Present," Longfellow advises, and perhaps rightly, for if we are to devote any considerable share of attention to investigating the diseases of our ancestors and predicting the scientific acquirements of our supra-vertebrate descendants, where are we to find even the most scanty and meagre brain power or leisure for contemporary research

The third chapter deals with the symptoms of failure of brain power, and contains little that we are not familiar with in other works on neurasthenia. It is satisfactory to find that Dr. Althaus takes a more reasonable view than used to be the fashion with regard to the prevalence of disturbance of the sexual functions in this affection, and also with regard to the importance of such disturbance in causation.

Of the nature of the neurosis we are told that "we are bound to look for the essence of the malady in an impairment of the finer nutrition of the neurons of the brain." This is the sort of sentence that reminds one of the "imperfect concoction of humours" which at one period of our art was somehow conceived to explain something. It looks a little as if in the course of the ages the method of medical reasoning does not change, though we talk sometimes of temperaments, sometimes of humours, sometimes of neurons, always endeavouring to explain that of which we know little by means of that of which we know less.

The treatment recommended is partly rational (regulation of work and diet), partly medicinal. Of the latter, using the word in the fullest sense, the most valuable item is electricity. "No other agent has such a direct and immediate influence in improving the tone of the neuron and subduing distressing symptoms." We will not dispute Dr. Althaus' clinical experience, though there are others who have not confirmed it, but we submit that "the tone of the neuron" means *x* and nothing more. Further, our faith receives a shock when we find that our author gives special instructions for galvanising the *anterior association centre* in cases where self-control is deficient, self-consciousness exaggerated, and attention difficult to fix; for galvanising the *meso-cephale* when the emotional centres are affected (despair, agoraphobia, &c.); the *posterior association centre,* "where the thinking power is more or less in abeyance with absence or flight of ideas, and foolish notions on persons and things. It is somewhat difficult to act upon this centre in persons with luxuriant hair, and easier in those who are bald or whose hair is thin."[a] The *bulbar centres* are to be galvanised where we have to do with such distressing symptoms as palpitations, tachycardia, spasmodic asthma, &c.

Diseases of which the pathology is unknown lend themselves specially to cures in which the faith of either patient or physician, or both, plays a prominent part.

Dr. Althaus is not a polypharmacist, and wisely warns against alcohol and narcotic drugs.

He has found no benefit from hypnotism.

Diabetes Mellitus and its Treatment. By R. T. WILLIAMSON, M.D., Lond.; M.R.C.P.; Medical Registrar, Manchester Royal Infirmary; Hon. Med. Officer, Pendleton Dispensary; Assistant to the Professor of Medicine, Owens College, Manchester. With 18 Illustrations. Edinburgh and London: Y. J. Pentland. 1898. Pp. 417.

IN this handsome volume we have a remarkably full and complete account of diabetes. The subject is calculated to repel rather than attract an author, so much is vague and uncertain in connection with this disease. Yet Dr. Williamson has succeeded in making his book interesting as well as instructive; where the subject is obscure he has succeeded in giving a clear account of the views of the chief authorities thereon, and where the matter belongs more to the domain of clinical observation and practice he writes from the standpoint of a careful and scientific physician.

After a short introductory chapter, we have a remarkably full account of the methods of examining urine for sugar. Dr. Williamson has a high opinion of the phenylhydrazin test as modified and simplified by himself (*vid.* this Journal, Dec., 1896). He finds that it never gives a positive reaction with healthy urine, whereas sugar when present in the extremely small amount of ·015 per cent. can be detected with certainty. For estimating the amount of sugar passed by any given patient from day to day, or occasionally, he recommends Roberts' fermentation test as being the most convenient. The chapter ends (as does every chapter in the work) with an excellent bibliography.

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[a] It is a pity this method of treatment was not applied to the authors of the late Vaccination Act. With all reverence to Dr. Althaus' favourite statesman, the present respected head of the Government appears, from the mere *coiffeur's* point of view, to satisfy some of our author's requirements.

The physiology and ætiology of diabetes occupy the next 110 pages. The views of a multitude of writers are quoted with impartiality. Dr. Williamson, *nullius addictus jurare in verba magistri*, seems to believe that "the disease is not a pathological entity, but rather a group of symptoms which may be produced by various morbid changes in the system. Just as fever is the result of many diseased processes, so it is quite possible, even probable, that diabetes is not always due to the same morbid condition, and that sometimes the starting point of the disease is in the nervous system, sometimes in the pancreas, occasionally in disease of the arteries (arteriosclerosis), possibly the muscles sometimes, and possibly it is due to various other causes, and to indigenous or inherited morbid conditions." "Our knowledge respecting the origin of the disease is very meagre in spite of the enormous mass of literature which exists in relation to the subject."

But Dr. Williamson has not been content with merely collecting the views and theories of other men; his book shows evidence of extensive and excellent work of his own. About the most interesting original matter that we find is his test for diabetic blood. He finds that the blood of diabetic patients is able to decolourise methylene blue, while healthy blood has little or no effect upon it. His method of carrying out this test is simple, and will be of interest in all cases, while in some in which it may be impossible to obtain a specimen of urine for examination (*e.g.*, in the case of a person found unconscious who is suspected of being in a state of diabetic coma) this blood test will be of great assistance.

Kültz drew attention to the presence of granular casts in urine as being a valuable premonitory sign of the onset of coma. On this subject Williamson writes: "I believe that when a small amount of dense, yellowish-white deposit appears exactly at the bottom of the urine glass, and when this deposit consists of casts in great numbers, coma nearly always follows." These casts he found in enormous numbers in 16 successive cases of coma; they are finely granular in character.

There is a very careful analysis of the symptoms of twenty-six successive cases of diabetic coma. As regards the pathology of this condition he makes an interesting observation:—"In coma a small amount of albumin and numerous casts are generally present in the urine—probably they are always present—and very frequently changes are found in the epithelium of the uriniferous tubules. Hence it seems probable that failure of the renal function occurs, that some poison ceases to be eliminated, and as a result the symptoms of diabetic coma follow. Now Vaughan Harley has shown that similar symptoms can be produced in dogs by injecting grape-sugar into the jugular vein, and preventing elimination by ligaturing the ureters. The two facts appear to me to throw much light on the pathology of diabetic coma."

Other interesting observations are on the condition of the knee-jerks in diabetes (absent in 50 per cent. of the cases in Manchester); on the condition of the pancreas (normal in twelve, diseased in eleven cases); and on certain changes in the posterior columns of the cord, which to the naked eye resemble sclerosis, while under the microscope only slight deviations from normal could be found.

The sections on Treatment are characterised by fulness and accuracy rather than by anything specially novel. The value and use of the various bread-substitutes is discussed at length, and many recipes for their cookery are given. Several curious and interesting methods of obtaining a sugar-free "milk" are described. Dr. Williamson is strongly convinced of the danger of a very rigid diet in some cases, such a diet being liable to produce coma. When the urine gives the dark brownish red coloration with perchloride of iron the withdrawal of all carbohydrates from the diet is specially dangerous. He also points out that in dieting any case we must endeavour to prevent loss of weight, even at the cost of increasing the excretion of sugar. The remarks on drugs follow the usual lines.

We have formed a very high opinion of Dr. Williamson's work. We can, with confidence, recommend it to our readers as a first-class work on diabetes.

The Transactions of the Society of Anæsthetists. Volume I. London: Published for the Society by the Medical Publishing Company, Limited. 1898.

No society has a better field for cultivation than that of the anæsthetists. Of the many powerful drugs grouped as anæsthetics we know almost nothing. The ignorance of the two best known drugs of the class—chloroform and ether—shown by the medical student and the medical practitioner is positively painful to think of, and is, as far as the public safety is concerned, alarming.

The modest little volume before is, we hope, the first of many volumes which will come as light-bearers to dispel the utter darkness of ignorance on this great subject under which the medical profession labours. It seems almost incredible that such ignorance could exist, but it is too evident, too painfully present, to be ignored.

London offers such an immense field for the study of anæsthetics that the Society should in a short time acquire an immense mass of facts, and from the large body of trained observers make thousands of careful observations which will enable the profession in the not too distant future to form an opinion on the relative merits of the different anæsthetics. The very fact that the great majority of the London anæsthetists are pronounced advocates for the use of ether will work for good; for we do not hesitate to say that reason will gradually assert itself, and the more general resort to etherisation in the city will quickly show how unsuitable is ether for the general run of major operations. The little volume before us shows to what extremes the London anæsthetists run in their anxiety to exclude chloroform. All manner of complicated apparatus are introduced, and numerous compounds tried; experiments, useful and puerile, that appear to favour ether are hailed with pleasure. We are glad of this—everything is being done to ensure the more general use of ether and to diminish the risk inherent in the drug. Statistics are carefully compiled to show the percentage mortality of ether and chloroform, all telling to the credit of the former. But, alas! for the compilers, the statistics show that chloroform is gradually being confined in use to the more serious major operations, and ether is being used in such operations as are done in the out-patient department and those that are completed in a very short space of time. Still the statistics stand for the edification of such as delight more in the success of a hobby than in the elucidation of truth.

The volume before us may be considered as the pæon of the etherists; every page tells of their enthusiasm; and we wait patiently for the cooler moments when reason and calm will sober their judgments.

Still a beginning has been made; the first outflow cannot be expected to be translucent, and we may forgive a little muddiness begotten of the perfervid admiration of ether.

Transactions of the Pathological Society of London. Volume XLVIII. Comprising the Report of the Proceedings for the Session 1896–97. London: Smith, Elder & Co. 1897.

Perhaps the most interesting paper in this volume is one by Drs. Kanthack and Pigg on Sir James Paget's celebrated case of malignant enchondroma of the testis—a case which has been widely quoted in literature. The tumour was believed to consist of pure hyaline cartilage; it extended along the lymphatics till it pierced the inferior vena cava, formed a fresh focus within its lumen, and gave rise to secondary cartilaginous tumours in the lungs. Drs. Kanthack and Pigg, whose interest in the subject was specially aroused by a case of carcinoma of the testis, with secondary growths in the vena cava and heart (described in this volume), made a careful re-examination of Sir J. Paget's case, and find it is a columnar-celled carcinoma, with extensive formation of cartilage.

There is another interesting paper by Drs. Smith and Washbourne on Infective Venereal Tumours in Dogs.

These growths appeared as soon as a week after infection, growing on the penis and in the vagina, and then increased in size till they became large solid masses. They appear to be round-celled sarcomata.

Dr. Kanthack contributes two valuable papers on the preparation of microscopic and museum specimens. Drs. Fox and Blaxall have a careful paper on the Plurality of Ringworm Fungi; and Mr. Targett on the Tabetic Foot. Altogether the volume is quite up to the high standard of the Society's Transactions.

King's College Hospital Reports; being the Annual Report of the Hospital, and the Medical Department of King's College. Vol. IV. London: Adlard & Son. 1898.

THIS volume is a model of what a Hospital Report should be. It commences with Part III. of Dr. Curnow's historical sketch of King's College and of the Hospital. Then we have several interesting papers; Mr. Carless contributes a very careful paper on Appendicitis. His views approximate to those which prevail in America, and he favours early operation. The following is his rule of treatment:—*If under suitable medical measures the condition is not at a standstill, or actually improving at the end of forty-eight hours, operation should be undertaken.* For the first two days, unless general peritonitis has commenced, he advises rest, low diet, an enema, stupes, and opium; if improvement does not make itself manifest, the surgeon should not wait for fluctuation or œdema, but should operate. He thinks that mechanical causes—strains and the like—are responsible for the onset of many attacks.

Dr. Whitfield has written a valuable paper on Syphilis, and Dr. Playfair one on Leucorrhœa. Dr. Webb contributes some reminiscences of Gynæcology in Berlin, which he strongly advises as the best place for learning practical gynæcology.

There are reports from each of the departments of the Hospital, each report being accompanied by a tabular statement of the cases treated during the year, containing the sex, nature of the disease, and result. Specially interesting cases are fully described in the Reports. From the Anæsthetic

Report we note that A. C. E. mixture was used much more frequently than any other anæsthetic. The Pathological Report contains an analysis of all the autopsies made in the hospital during the year. Short Reports from the Medical Department of King's College conclude the volume, which is one of which its editors may well feel proud.

Clinical Reports of the Rotunda Lying-in Hospital from October, 1893, *to October,* 1897. *With a Report of the Gynæcological Department for the Twelve months ending October* 31*st,* 1897. Dublin: John Falconer. 1898.

Dr. W. J. Smyly's report of the maternity work accomplished during his last three years of Mastership to the Rotunda, as well as that of Dr. Purefoy, the present Master, having come to hand simultaneously, may with advantage be discussed together.

In the former we read that 10,278 patients were delivered in the hospital during the time covered by the report. Of this number fourteen died, a mortality of 0·374 per cent. Seven deaths occurred in the first, six in the second, and only one in the third year.

This last figure marks a record in the annals of the hospital, and, when the conditions of admission are taken into consideration, it affords an unexampled proof of the progress made in the art of midwifery.

If the tables are still further scrutinised, it may be observed that there were thirty-one patients with placenta prævia, none of whom died, and likewise in twenty cases of accidental hæmorrhage there was no death; neither was any life lost as a result of post-partum hæmorrhage. Three out of nine eclamptic patients died, a result that still leaves much to be desired. Forceps were applied on an average once in each thirty-seven deliveries, and in but one of the 117 applications was it found necessary to use them before the head had engaged in the pelvic brim. One patient died of heart disease, she being three months pregnant. There were three craniotomies, in none of which the operation was undertaken until after the death of the fœtus.

If we now turn to Dr. Purefoy's report of twelve months' work, ending October 31st, 1897, we note with satisfaction the painstaking manner in which it has been compiled. It is likewise rendered greatly more interesting by the incorporation into one book of the gynæcological and midwifery reports.

The able way in which these are compiled reflects credit not alone on the present master but likewise on his assistants. Here we find that 1,448 women were delivered, of whom but two died. Thus there were but three deaths in two years' hospital maternity work—results that challenge any other statistics throughout the world.

Of the two fatal cases, one died of ruptured uterus, the other of septic endometritis.

Turning now to the gynæcological department we read that the newly-built wing of the hospital has accommodation for thirty-six patients. It is fitted with two operating theatres, and is complete with every aseptic requirement. Dr. Smyly's name must always remain closely associated with this great work from its inception to its completion.

Dr. Purefoy mentions that 227 operations were performed here during the twelve months. Of this number nine ended fatally—a mortality which must be accounted low when the seriousness of many of these is considered. We note that severe hæmorrhage followed curetting in six cases, necessitating in each instance the plugging of the uterus with iodoform gauze.

These reports will not fail to interest those reading them, and they reflect the highest praise on the head of an institution which has earned for itself, not without reason, a wide-world reputation.

Medical Diseases of Infancy and Childhood. By DAWSON WILLIAMS, M.D. Lond.; Fellow of the Royal College of Physicians of London, and of University College, London; Physician to the East London Hospital for Children, Shadwell. London: Cassell & Co. 1898. Pp. 626.

WE have pleasure in favourably noticing the appearance of this book, which is a thoroughly safe guide to the diseases of children. No one should be more qualified to write on this subject than Dr. Dawson Williams. The third chapter—on Diseases Incidental to Birth—is the most valuable of the early parts of the work, and it is excellently arranged. A thorough grasp of the diseases of children is perhaps one of the most difficult branches of medicine, but Dr. Williams' book can with safety be consulted at all times by practitioners. Another portion of the work which deserves commendation is that on tuberculosis. Four chapters are devoted to its consideration. These are, perhaps, the best parts of the book, and we are not acquainted with any more concise description of this widespread disease so fatal to children. It is deserving of special study. There are some excellent plates and figures in the text. Diseases of all the systems are treated of *seriatim*, and young practitioners, for whom Dr. Williams expressly writes, will find all they require in this volume. The paragraphs on treatment are particularly deserving of attention. They show clearly the different treatment required by a child and an adult, although suffering from identically the same disease.

RECENT WORKS ON DISEASES OF WOMEN.

1. *A Text-Book of Diseases of Women.* By CHARLES B. PENROSE, M.D.; Professor of Gynæcology, University of Pennsylvania. Second Edition. 217 Illustrations. 8vo. Pp. 529. London: The Rebman Publishing Co., Ltd.
2. *Diseases of Women.* By ALEXANDER SKENE, M.D.; Ex-President of the New York Obstetrical Society, &c. Third Edition. 290 Engravings; 4 Coloured Plates. London: H. K. Lewis. 1898. Roy. 8vo. Pp. 991.

1. THIS work calls for high praise on the part of the reviewer. It fulfils all the requirements of a teaching gynæcology, being neither too large for the unqualified student nor too small for the practitioner. It at the same time contains sufficient information to enable a careful reader to become practically versed in the subject treated of.

It is pleasing to note what little prominence is given to faulty positions, antiquated methods of treatment, and obsolete mechanical appliances. There is also an absence of theoretical speculations, which not unfrequently furnish what we cannot but consider "padding" to works of this kind.

The plates and illustrations are sufficient and good, but otherwise call for no comment.

Having said so much concerning the work as a whole, we need not bring our readers chapter by chapter through the volume, but shall instead glance at a few sections which seem to call for particular remark. Injuries to the perinæum, described in Chapter VI., is one of these, and constitutes a valuable contribution to the subject. Great emphasis is here laid on the importance of the levator ani muscles. It is pointed out that the fibres of these are often torn asunder by lacerations extending into the vaginal sulci—an accident not usually accompanied by an extensive tear of the perinæum. This accident is one too frequently passed over as unworthy of immediate suture by the obstetrician. Yet these are the very cases in which we may expect prolapse, with its numerous sequelæ, to subsequently take place. On the other hand, complete tears of the perinæum in the median line, even though extending down to the anus or into the rectum, are, as a rule, unassociated with these complications, though they give rise, of course, to a special train of symptoms.

We object to Fig. 93—which portrays a uterine repositor—as an entirely unnecessary instrument; nor can we imagine under what circumstances the necessity for the knee-chest position, as figured in picture 94, could arise in order to accomplish replacement of the uterus. We note that this illustration is taken from Baldy's work—one for which we entertain the greatest respect.

The author advocates ventro-suspension of the uterus as the operation which offers most advantages for the cure of retroversions, he advises that sutures be inserted into the uterine muscle to the depth of one-eighth of an inch, and to the width of a quarter of an inch, thereby expecting that a long, thin adhesion will eventually take its place. This will allow a certain amount of uterine movement to occur, and does not interfere with the normal course of pregnancy.

A sound warning is given as to the danger of perforating the uterus during the curetting operation. It is pointed out that this has happened in the hands of the best surgeons, and that it is much more liable to occur after labour or recent abortions.

We cannot, however, agree with the advice, that in the event of perforation happening "the uterus should be carefully washed out with the bichloride solution," the strength of this having been previously given as 1 in 4,000. When once perforation has taken place the less our patient is interfered with the better it will be for her, and to run the risk of introducing poisonous antiseptics to the abdominal cavity appears a very questionable proceeding.

We trust the author will bear with us in our criticisms of a few passages occurring in a work singularly free from defects.

2. The former editions of this work are well known, and have enjoyed a high reputation. This, the third, edition is in every way superior to those that have gone before it, and has been modified and improved in many respects.

The author is an original worker in his art, and has in many instances evolved along paths of his own; neither is he inclined to discard well-tried methods for the incessant new innovations which daily are brought forward for consideration. Conservatism is therefore the stamp of the book, and this trait in itself will make it popular with many. Sims's position, of course, is elaborately described, and we gather from the work that it is used for the majority of the author's vaginal operations. Stem pessaries, curious clamps, scissors of wonderful pattern, and uterine repositors are amongst what may be considered the novelties of the book.

Vaginal and abdominal hysterectomy are well described, and the subject has been brought fairly up to date by a description of Landow's morcellement and Kelly's abdominal extirpation.

The portion of the work which will, however, be found of greatest value to the trained gynæcologist is the elaborately written sections dealing with diseases of the urinary organs. One-third of the book is given up to these, and it will repay the reader's closest perusal.

The subjects are dealt with here on quite different lines to that which Howard Kelly adopts in his most admirable work, and thus the possession of either of these books does not justify the absence of the other from our library.

Dr. Skene speaks highly of electricity as an aid to the operator, and describes with minuteness his vaginal hysterectomy conducted by means of electrically treated clamps. Ligatures are thereby dispensed with.

The use of electricity is a great difficulty in those places where a street supply is not available. To meet this want the author describes and figures a small hand-driven dynamo which he apparently considers most satisfactory.

"It is a convenient and reliable means for heating the hæmostatic forceps as well as cautery electrodes, and for lighting small incandescent lamps. It requires no attention except an occasional oiling. Each winding is capable of generating a current of fifteen ampères at a pressure of from one and a half to three volts, according to the speed of armature."

We presume the author has tested this instrument for himself, and verified the truth of the above statements, which appear to have been copied from the maker's description. This being so, it is a pity that nothing is said as to its initial cost, or where the machine is to be procured, for assuredly could such an apparatus be procured at a reasonable price a ready sale would be secured for it.

Chapter XXIX. treats of ovariotomy in a very out-of-date manner, and as though it were an operation requiring descriptive detail beyond all other abdominal sections. Thus the position of the operator, his assistants, nurses, instruments, &c., are diagrammatically placed, sponges are used, a rubber cloth is spread over the patient and made to adhere to the skin around the incision, Keith's pedicle clamps and carbolic towels are advised to be at hand, and much more information of an antiquated sort is given.

We dare say this short review will serve to indicate, to some small degree, the extent and usefulness of the work before us, and in taking leave of it we need only add our congratulations to the publishers (H. K. Lewis, London) for the manner in which the plates and engravings have been executed, as well as for the general excellence of the letterpress.

The Diseases of the Lungs. By JAMES KINGSTON FOWLER, M.A., M.D., F.R.C.P.; Physician to the Middlesex Hospital and to the Brompton Hospital for Consumption, &c.; and RICKMAN JOHN GODLEE, M.S., F.R.C.S.; Fellow and Professor of Clinical Surgery, University College, London; Surgeon to University College Hospital, and to the Brompton Hospital for Diseases of the Chest, &c. With 160 Illustrations. London: Longmans, Green & Co. 1898. Pp. 715.

THIS is a truly admirable book; the more we study it, the more impressed we are with its many excellencies. It differs in several points from the other works on diseases of the lungs with which we are familiar. In the first place, the surgery of the chest in this volume for the first time appears in its due place, alongside of matters which are more purely medical. That is a great advantage. The surgery of the chest is such a recent development that it has been often difficult to find any authoritative statement at times when some question arose as to the chances of a patient deriving advantage from some operative procedure within his thorax. Mr. Godlee's contributions to the work before us are written in an admirable style—clear, careful, and full of attention to the most minute points. He discusses the advisableness of operative measures with impartiality, balancing the arguments for and against; he is not a mere enthusiast in this branch of surgery, hence we feel that we can follow his advice and adopt his conclusions.

In the second place, the work is of a thoroughly modern type. Bacteriology is fully recognised; thus, we find pleurisies, as far as possible, classified according to their causative microbes. All through the work we find that the authors have written a *new* book, and one in many ways different from the works on the chest with which we have been accustomed.

In the third place, illustrations are more freely used than we generally find to be the case in works on medicine.

This is a step in the right direction. We have never been able to understand why every work on surgery is deemed incomplete without numerous woodcuts, while otherwise excellent works on medicine are considered well illustrated if provided with a few reproductions of temperature charts and perhaps a woodcut of a few urinary crystals, and of a tapeworm or two. Nearly all Drs. Fowler and Godlee's illustrations are excellent and new.

The work opens with a chapter by Mr. Godlee extending to 50 pages, on the Anatomy of the Chest. It is provided with 43 illustrations, and forms a truly admirable account of the anatomy of the thorax. The illustrations show the topographical anatomy of the lungs with remarkable clearness.

The second chapter is by Dr. Fowler, on Physical Diagnosis. The description of pulmonary sounds, normal and abnormal, is good; but we are sorry to find the author later on in the work (page 101) departing from his classification, and speaking of "dry râles," although he has defined râles as "sounds produced by the passage of air through exudation." Surely then to speak of "dry râles" is to tend to increase that confusion of nomenclature which he laments.

The rest of the book is devoted to the diseases of the lung, pleura, and mediastinum. Naturally, much the larger share falls to Dr. Fowler's lot. We are struck by the completeness of his work; a large number of very rare affections are fully described—conditions often passed over entirely, or with very brief notice, in works on the lungs. For example, there are chapters on Pulmonary Mycosis (aspergillomycosis), on Protozoic Infection of the Lungs, on Aneurysm of the Pulmonary and its Branches, on Chylous Pleurisy, and on many other rare conditions, which give a far more full account of these affections than we have met with elsewhere.

The mode of causation of various morbid conditions is carefully discussed. We would refer to the excellent articles on the pathogeny of Bronchiectasis and Emphysema.

We have noticed very few slips or misprints. Œgophony (page 66) is, of course, a mistake for ægophony; the word appears rightly spelled elsewhere in the book. The amount of albumin in pleural exudation is given as 31 to 77 per cent. instead of per thousand, as it ought to be (page 553). In the table (page 646) showing the analysis of the fluid in hydrothorax no information is given whether the figures are parts per cent., or (as is the case) per thousand.

We must again express our very high opinion of this work, and we intend to keep it constantly by us for reference.

The Medical Register and Directory of the Indian Empire. Second Edition. By JAMES R. WALLACE, M.D., F.R.C.S.I.; Editor, *Indian Medical Record.* 1898. 8vo. Pp. 228.

THERE can be no doubt of the value of this work to medical practitioners in our Indian Empire. We are of opinion that its value to medical practitioners at home is scarcely less—for we regret we have to admit that little is known at home of the status and doings of the medical profession in India.

It will scarcely be credited that so vast and so important a country as India is still without a system of registration. Its physicians and surgeons are absolutely unprotected by the State, and their diplomas, although *sold* to them by the State, are entirely devoid of legal recognition. In 1892, Dr. Wallace, at great cost and without any pecuniary aid from the Government of India, prepared and published the first edition of the Medical Register and Directory of the Indian Empire. The second edition has now been published. It is double the size of its predecessor, and is divided into seven sections or parts. The first contains general information. The second explains the abbreviations used in the work, gives a list of the General Medical Council, and one of members of the profession who have received titular distinctions (not up to date, for it contains the name of Sir George B. Owens, and omits the names of Sir George F. Duffey and Sir W. Thomson). Part III. reprints the

Medical Acts of Great Britain and Ireland, and describes medical education in both the British Isles and the Indian Empire. Part IV. is devoted to the Indian Medical Association; Part V. to the Military Medical Services of India. Part VI. includes a "retired list," and Part VII. a "general alphabetical list" of Government medical officers, medical practitioners, and subordinate medical officers resident in the Indian Empire. This list occupies 228 pages.

This statement as to the contents of the volume illustrates its value as a work of reference. The book is, on the whole, well brought out, but we hold that the gilt advertisements on the cover sadly mar its general appearance, and are entirely out of place and *bizarre.*

Letts's Medical Diary for the Year 1899. London, Paris, New York, and Melbourne: Cassell & Co.

THIS excellent Diary needs no words of commendation from us. It is neat, cheap, and efficient. An interleaved edition is published, giving space for the names of 108 patients. The plain edition accommodates 54 names. There are various bindings. The cheapest, in plain cloth, costs only half-a-crown.

The Pharmaceutical Formulary. Being the Twelfth Edition of Beasley's Pocket Formulary. Edited by J. OLDHAM BRAITHWAITE. London: J. & A. Churchill. 1899. 8vo. Pp. 464.

ALTHOUGH this book is described as the twelfth edition of Beasley's well-known pocket formulary, it is so only in name, for it has been entirely rewritten and enlarged.

The editor's object in compiling the present "edition" has been to bring together, in a compact and convenient form, the whole of the formulæ in the British, French, German, and United States Pharmacopœias. He has also sought to include in the work the contents of the chief unofficial formularies in common use in this country and abroad, such as the Unofficial Formulary of the British Pharmaceutical Conference, 1894; Martindale's and Westcott's Extra-Pharmacopœia; the National Formulary of the American Pharmaceutical Association, 1895; Squire's Companion to the British Pharmacopœia; and the Throat Hospital Pharmacopœia. Such other medicinal formulæ as experience has proved to be of more than merely local importance also find a place in this most useful work. It is therefore accurately described on the title-page as "A Synopsis of the British, French, German, and United States Pharmacopœias, and of the Chief Unofficial Formularies."

Beyond its value as an authoritative formulary the book plays the part of an international lexicon of pharmaceutical terms—no small advantage to its readers.

Needless to say the work is well brought out. The printing is clear, and the book is handy and portable.

Archives of the Roentgen Ray. Edited by W. S. HEDLEY, M.D., and SYDNEY ROWLAND, M.A., M.R.C.S. Vol. III. No. 1. August, 1898. London: The Rebman Publishing Co. 1898.

THIS number of the Archives is of more than average merit and interest. It contains, as usual, the Transactions of the Roentgen Society, translations from foreign periodicals, original communications, and a series of excerpts from the *British Medical Journal* on the relations of the X-rays to tuberculosis as regards diagnosis and treatment. Five plates also embellish this number. Mr. S. C. Moore, M.B., of Liverpool, exhibits a case of genu valgum; Dr. Carl Beck, of New York, one of fracture of the humerus; Dr. F. H. Low, of London, a case of a tube in the antrum of Highmore; Mr. Ernest Payne, of Brighton, three femur-fractures; Mr. Henry A. Roome, M.B., of Southsea, a large protuberance on the left side of the neck; and Dr. William Martin, M.A., M.D., of Newcastle-on-Tyne, a case of bullet-wound of the right foot, and one in which a halfpenny was impacted in the throat at the junction of the pharynx and œsophagus.

No more eloquent testimony to the practical value of X-ray investigations in surgery could be adduced than this series of radiographs so faithfully bears.

We note that the address of the Rebman Publishing Company has been changed from 11 Adam-street, Strand, to 129 Shaftesbury-avenue, Cambridge Circus, London, W.C. The American agent is W. B. Saunders, 925 Walnut-street, Philadelphia, Pennsylvania.

Wright's Improved Physicians', Surgeons', and Consultants' Visiting Lists. Compiled by ROBERT SIMPSON, L.R.C.P., L.R.C.S. Sixth Edition. [Copyright — registered]. Bristol: John Wright & Co.

WE have received, through the courtesy of the publishers, a series of these excellent and most convenient visiting lists. They are marked "A.," "B.," and "C.," respectively.

Form A. is suitable for use in 1899. So strictly does it economise space, that a vast amount of both accommodation and information is included in a wonderfully small compass. It enables the practitioner to save time by having to enter his patients' names only once a month, instead of weekly as heretofore. It also includes a "Consultant's Record," in which consulting physicians and surgeons may see at a glance the dates and hours of their appointments, together with the name of the medical man in attendance.

Form B. is the same as Form A., with the exception that it is applicable to any year, and not merely to 1899. Hence it is called the "Perpetual" Visiting List.

Form C. has a supplement for Certifying Surgeons under the Factory and Workshops Act.

SHOT WITH A PISTOL IN THE ABDOMEN.

VAUGHAN reports a case of a man who was shot with a pistol in the abdomen, the ball, of 38-calibre, having entered the left side of the abdomen. Under chloroform the peritoneal cavity was opened and 10 intestinal perforations, 8 in the lower part of the jejunum, and 2 in the ileum, were found and closed with a mattress-suture of fine silk. In addition to these there were 12 perforations of the mesentery. Despite the number of intestinal wounds, the patient made an uneventful recovery.—*Medical News.*

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

CLINICAL RECORD.

Remarkable Undisfiguring Union of a Fractured Thigh-bone in an Elderly Woman of Sixty-three. By James R. Wallace, M.D., F.R.C.S.I., Calcutta.

Mrs. S., an Irish lady, sixty-three years of age, of splendid physique, who has lived in Calcutta for over thirty years, and by the way is the mother of three British officers in the Indian Army, slipped in her bath-room on Christmas Eve, 1897, and fell heavily across the one-foot-dam so commonly seen in English houses in this country. She struck herself across the middle of the right thigh and immediately felt severe pain in the part, was unable to raise herself, and had to be carried to her bedroom. Not suspecting that her leg was broken, she lay in bed suffering great pain. The extensive swelling and discoloration of the thigh and hip alarmed her, and I was summoned to attend her at noon on the 26th December, two days after the injury. I found Mrs. S. in great pain, unable to move, with pillows propped behind her in a half sitting posture, and the lower half of her right thigh and leg lying almost at a right angle to the upper half of the thigh. There was great swelling of the parts, the ecchymosis, which covered the whole limb and extended backwards into the hip, was not only perfectly black, but the skin showed signs of blistering, from the extensive superficial extravasation of blood. The limb seemed bordering on a gangrenous condition, but was warm, free from smell, and pulsation could be felt in both the common femoral and the popliteal. There was also a feeling of healthy warmth in the foot of the injured limb. The patient seemed much exhausted, so after administering a little brandy and water, I gave her a few whiffs of chloroform, straightened the broken limb, swathed it in cotton wool and bandages, and after fixing a temporary extension weight to the ankle and settling the limb between two sand-bags, I advised constant nourishment and stimulation, and watchful care for a few days before putting the leg into splints. I gave a serious prognosis, as from all appearances gangrene seemed imminent. For three days the broken bone was kept in position with sand-bags, and during this period the enormous swelling subsided gradually, though the extravasation discoloration lost none of its suspiciously grave appearances, except that the sanious bullæ had collapsed, and the cuticle was dried and shrunken. This was a favourable sign, and I therefore gave a guarded but fairly satisfactory prognosis. Extension of the limb was now accomplished by means of an 8lb weight and a pully arrangement over the foot of the bed. By the tenth day the swelling had almost entirely gone, the ecchymosis had altered in colour, and though there was no sign of union between the injured fragments of the femur, both ends being still freely movable, the limb was in perfect position, there was very little pain, except on pressure or movement, and there was a complete absence of muscular rigidity or spasm. The thigh and leg were now fixed to a Liston's long splint and the extension apparatus readjusted. After three weeks this splint was removed and the thigh was put into a plaster-of-Paris encasement; the extension was continued. After four weeks the plaster casing was taken off, and the limb was bandaged somewhat tightly with flannel. Extension was stopped and the patient was allowed to go about on crutches. The appearance of the thigh at the seat of fracture was all that could be desired. There was some degree of bulging, but the callous nodosity was comparatively small, though apparently very dense and hard. There was little or no limp when I saw the patient six months later, and only about half an inch of shortening of the limb.

The most remarkable features about this case, which render its publication surgically interesting, are:—

(1.) The advanced age of the patient—sixty-three—and her safe recovery from the intensely threatening traumatic condition that made gangrene imminent.

(2.) The perfect recovery of the use of her limb with scarcely any apparent shortening in one so advanced in years.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—Edward H. Bennett, M.D., F.R.C.S.I.
General Secretary—John B. Story, M.B., F.R.C.S.I.

SECTION OF PATHOLOGY.

President—J. M. Purser, M.D.
Sectional Secretary—E. J. McWeeney, M.D.

Friday, November 4, 1898.

The President in the Chair.

Diffuse Enchondroma of Thigh.

Mr. John Lentaigne read a communication on this subject.

Dr. E. J. McWeeney (Secretary) had made a microscopic examination, which showed the characters of hyaline enchondroma extremely well. The hyaline character of the matrix was very distinct, and a very large number of cartilage cells, some of them apparently in a germinating condition. Nearly all the enchondromata he had seen were of the fingers, and were of very regular, almost egg-shaped, outline, while this presented a very peculiar cauliflower sprouting which he had never previously seen. The central portion was composed of cancellous bone. It would be interesting to see whether there would be any tendency to generalisation of this tumour in future.

Two Cases of Tuberculosis Oculi.

Mr. J. B. Story showed two eyeballs removed for tuberculosis, and Dr. O'Sullivan exhibited and described the microscopic appearances.

No. 1 was a case of tuberculosis of iris and ciliary body in a boy aged seventeen, presenting the ordinary characters.

No. 2 was a case of localised tuberculosis of the intra-ocular end of the optic nerve, simulating pupillitis with detached retina. It occurred in a healthy girl aged twenty-one.

Mr. Story had never observed such a case, and believed it to be unique.

Dr. E. J. McWeeney (Secretary) said that no method of staining brought out the structural details so well as von Giesen's. He thought that the reason why they failed to find tubercles in the retina oftener than they did was, perhaps, because they failed to seek for them. As a rule the lesions of tuberculous eyes are more or less evident in front.

DR. O'SULLIVAN, in reply, said that he had found, he did not know why, a great deal of difficulty in getting the fuchsin out of the section after it was stained. He found no tubercle bacilli, and thought it possible that he had decolorised the bacilli, having had recourse to rather violent methods of getting the fuchsin out.

Bicuspid Aortic Opening.

DR. H. C. DRURY exhibited the heart of a man aged about fifty-five years, showing the rare anomaly of only two valves at the aortic opening. The condition of the organ during life was unknown, as the patient was admitted into hospital in a dying state, and lived only a few hours.

There was atheromatous thickening of the aortic valves, which rendered them incompetent; also atheroma of the aorta above them. The other valves of the heart were normal, the pulmonary opening having three normal healthy valves. Though there was atheroma of the aorta and its valves, he considered that the bivalved condition was a congenital one, and not acquired by the adhesion of two, and subsequent absorption or ulceration of their attachment to the aorta, because (1) the valves were approximately equal in size and very large; (2) there was no evidence in either valve of a line of union. Their position was, one to the right and slightly posterior, the other to the left and slightly anterior—the slit between their free edges being directed from before and a little to the right, back and a little to the left. The right appeared to represent the normal right posterior, with half the anterior valve; the left representing the normal left posterior, with half the anterior valve. There is a coronary opening behind each, the right coronary being situated behind the anterior part (half anterior valve) of the right valve; the left coronary behind the posterior part (left posterior valve) of the left valve. There was a distinct ridge behind the right valve, making a larger and smaller sinus in the aortic wall; from the smaller anterior sinus the right coronary artery arose. As there was atheromatous disease present it was not quite clear whether this ridge was due to atheroma, or represented the normal division between the anterior and right posterior sinuses of Valsalva; but, judging from its position with respect to the right coronary opening, the latter view had strong support. There was no marked subdivision of the aortic wall behind the left valve.

The President said that it was an interesting question as to whether the lesion was an acquired or pathological malformation of the valves.

Dr. J. B. Coleman exhibited a series of hearts showing the following lesions :—

(*a*) *Pure Aortic Stenosis.*—Female, aged fifty, never had rheumatism or syphilis, had cardiac pain for nine months preceding death, which occurred suddenly. The left ventricle was hypertrophied without dilatation; aortic valve stenosed to a mere sinuous chink through which the blood could pass; the anterior and left posterior segments were fused, thus producing a bicuspid aortic valve.

(*b*) *Aortic Insufficiency.*—Male, aged thirty-two, had rheumatism twelve years ago, and syphilis four years later. On admission to hospital he suffered from dyspnœa, palpitation, and œdema of legs. He presented the typical signs of aortic insufficiency and stenosis, and secondary mitral regurgitation. The diastolic murmur over aortic area was loud and musical in tone, and was accompanied by a thrill. Heart weighed 21 ounces; left ventricle showed marked hypertrophy and dilatation. The diastolic murmur was audible all over cardiac area, and in upper part of left intervertebral groove.

(*c*) *Ulcerative Endocarditis.*—Male, aged eighteen, porter by occupation, never had rheumatism, was admitted to hospital with febrile symptoms, cough, hæmoptysis, and palpitation. He had well-marked signs of double aortic disease, and of mitral regurgitation. Heart was enlarged, weighing 19 ounces; there was considerable hypertrophy and dilatation of left ventricle; aortic valve was incompetent, its right posterior segment showing an aneurysm (*valvular aneurysm*) of the size of a large pea. The ventricular surface of this segment was ulcerated; the other aortic segments were sclerosed and retracted, and covered with warty, ragged projections. The mitral valve was incompetent, and had recent vegetations on its auricular aspect.

(*d*) *Mitral Stenosis and Insufficiency.*—Female, aged twenty-four, history of rheumatism in her ninth year. On admission to hospital she had cough, dyspnœa, and bronchitis, and œdema in legs. Over mitral area there was a loud mitral systolic and a short post-diastolic murmur. She had also an aortic systolic murmur, and pericardial friction sound was audible at left margin of sternum, opposite the third intercostal space. The rate of her pulse was only 44 per minute. Before death she had hepatic pulsation, and increasing dropsy and cyanosis. Heart enlarged; pericarditis over right auricle; some hypertrophy and dilatation of left auricle and ventricle, with great enlargement of right side of heart, with insufficiency of tricuspid valve; pulmonary artery was larger than normal, and contrasted with the aorta, which was very narrow. The aortic orifice was also narrow. There was funnel-shaped mitral stenosis, the mitral orifice admitting only the tip of the little finger, and allowing at the same time some regurgitation. The narrowing of the aorta and of its orifice seemed to be due to hypoplasia, but the physical signs of aortic stenosis were produced.

(*e*) *Hypertrophy and Dilatation* (chronic Bright's disease).—Male, aged fifty, subject of lead poisoning and chronic interstitial nephritis. Died of heart failure, with œdema of lungs and general dropsy. *Necropsy.*—Heart was enormously enlarged, weighing 32 ounces (*cor bovinum*); both left and right ventricles were hypertrophied and dilated; recent pericarditis was present; all the valves were healthy.

Septico-Pyæmia.

The SECRETARY (Dr. McWeeney) gave an account of his study of a case of septico-pyæmia associated with acute suppurative arthritis in a boy aged twelve, after a slight blow on the right knee from the swing-bar of a trapeze. Four days later patient was admitted to the Mater Hospital under the care of my colleague, Mr. Lentaigne, with high fever and delirium. The knee was swollen and tender, but showed no trace of external injury. The joint was opened, a large amount of turbid, almost puriform, fluid evacuated, and the cavity washed out and drained. Next morning the temperature had fallen, but the patient seemed very weak, and developed pericarditis. Next day the temperature ran to 106°, with asthenic delirium, and the patient sank. At the autopsy the points found were purulent infiltration of the soft parts surrounding the joint, an ecchymosis as big as a half-crown over the front of the inner condyle, a thin layer of purulent matter covering the crucial ligament, no suppuration of the lower epiphysis or diaphysis of the femur, no thrombosis of the popliteal vessels. Acute sero-fibrinous pericarditis, with suppurative myocarditis occurring in isolated foci as big as a pea in various parts of the myocardium, some of the foci being embedded in the muscle, some abutting like infarcts on the epicardium, and evidently of embolic origin. The lungs showed numerous septic infarcts, as did also the kidneys. There was incipient acute pleurisy on both sides.

The case was evidently one of extremely acute generalised septic infection, starting from the knee, which had apparently become a *locus minoris resistentiæ* owing to the slight injury. The bacteriological examination revealed *Staphylococcus aureus* in the fluid removed from the knee at the time of operation, and also in the pericardial fluid; also in the foci in the lungs, myocardium, and kidneys. How it had obtained entrance was not clear. The speaker demonstrated the cultures, and a series of microscopic slides, stained by the Weigert-Gram method, showing the cocci in the various organs. He also showed a preparation, made from his own finger, which had become infected at the autopsy without any wound, apparently along the shaft of a hair on the dorsal aspect of the second phalanx. In spite of active treatment a troublesome furuncle had resulted, the slough from which swarmed with the *Staphylococcus aureus.* There was some lymphangitis, but he had fortunately escaped without glandular infection.

Pathological Ulnæ.

Dr. J. Knott exhibited and described a series of twenty-eight human ulnæ, showing united fractures in various positions, rachitic curves, arthritic deposits and change of various kinds, illustrative of the principal pathological conditions of this bone. Two were *young* bones. One of these showed with beautiful distinctness two separate centres of ossification in the olecranon process.

Dr. E. H. Bennett said that one of the specimens had this feature, that it was an extremely oblique fracture of the ulna, which, if it were associated with fracture of the radius of the same side, would undoubtedly have undergone more displacement than shown by the specimen. Some years ago he had inquired into such cases, and found that such a fracture, united with little or no displacement, is, in fact, a fracture of the ulna alone, and the difficulty at once arises to explain the occurrence of this, because the ulna is only broken by a direct blow, and a direct blow does not produce an oblique fracture.

The Section then adjourned.

SECTION OF SURGERY.

President—R. L. **Swan**, President of the Royal College of Surgeons.
Sectional Secretary—**John Lentaigne**, F.R.C.S.I.

Friday, November 11, 1898.

The **President** in the Chair.

Stab Wounds of the Left Shoulder, necessitating Ligature of the Left Subclavian Artery on the 27th day for Secondary Hæmorrhages; Recovery.

Mr. R. Bolton M'Causland read notes of this case. [They will be found in Vol. CV., page 490.]

A discussion followed, in which **Mr. Henry Gray Croly**, **Mr. T. Myles**, **Mr. Chance**, and **Mr. Lentaigne** took part. **Mr. M'Causland** replied.

Coxa Vara.

Sir Thornley Stoker read a paper on coxa vara, in which, after briefly drawing attention to the history of the discovery of the complaint, and the fact that until 1889 it had been mistaken for morbus coxæ, he discussed its nature, mechanics, signs and symptoms, diagnosis, and treatment. He mentioned the varieties of the deformity, and dwelt particularly on that due to rickets as the most common. It is a condition of bending of the neck of the femur, so that the head of the bone is depressed, and shortening of the limb thus produced. The head is also bent backwards, so as to render the neck convex in front, and thus cause eversion of the thigh, which, combined with shortening, is the chief physical evidence of the disorder. He showed skiagraphs of the condition, taken by Dr. Lane Joynt, and bones affected by the deformity. He referred to observations he had made of the pain in coxa vara, which he considered differed from that of morbus coxæ in being situated in front of the knee instead of behind or inside it, and offered an anatomical explanation of this fact. He said that until 1896 he had been teaching that many mild cases of morbus coxæ occurred in which recovery took place with no defect beyond a little shortening; these are now known to be, for the most part, examples of coxa vara. The diagnosis of coxa vara from morbus coxæ is one of deep importance, as the former condition is free from danger to life, and must be treated on different lines.

The Section then adjourned.

SECTION OF MEDICINE.

President—J. W. Moore, M.D. Univ. Dubl.; President of the Royal College of Physicians of Ireland.

Sectional Secretary—R. Travers Smith, M.D. Univ. Dubl.

Friday, November 18, 1898.

The President in the Chair.

Recent Clinical Experiences of Septicæmia and Enteric Fever.

The President (Dr. J. W. Moore) submitted a series of cases of what he believed to be manifestations of septicæmia. He also presented clinical records of two unusual cases of enteric fever. [This paper was published in Vol. CVI. No. 324. December, 1898. Page 496.]

Acute Hæmorrhagic Ascites.

Dr. Finny recorded a case of above. [It is published at page 1 of the present number of the Journal.]

Dr. Little said he had never seen a case of ascites in which there was hæmorrhagic fluid. He had little doubt, however, as to the diagnosis, because they all knew that hæmorrhagic fluid drawn from the thoracic cavity almost invariably indicated a new growth in the thorax. Dr. Finny had drawn attention to one point which he (Dr. Little) wished to emphasise still more, as he thought it of great importance in diagnosis, and that was the character of the urine. He recollected a case of an old lady who was about to be tapped, about which he and the President had differed somewhat. He (Dr. Little) caught sight of a vessel under the bed half full of perfectly clear urine, and he, therefore, ventured to say that she had not got cirrhosis of the liver. He then found, on tapping, abundant growths all through the abdomen. He thought that Murchison's observation, that they should always doubt the existence of cirrhosis of the liver unless they saw deeply pigmented urine, was worthy of consideration.

A Country Herbalist's Cure for the "King's Evil."

Dr. J. Knott read a paper on "A Country Herbalist's Cure for the King's Evil." The details had been procured from a sexton in the west of Ireland. The cure was carried out in three stages. 1. The "sore" was dressed with a preparation of the leaves of the *Cuckoo-sorrel*. 2. It was dressed with a preparation of the root of the *Sweet-meadow*. 3. The healing was completed under a plaster compounded of bees' wax, sheep suet, yolk of egg, and first flour.

Dr. Knott had found, on looking into the literature of "Herbal Simples," that both the plants employed in this rural remedy had enjoyed a high reputation during the ages in which such remedies were specially prized. The treatment of "Scrophulous Ulcers" by the application of these herbs is mentioned by Dr. Beddoes, and the account of it was quoted from this writer by Dr. Winterbottom, who compares it with a very similar treatment of "Scrophulous Sores" which he had found in general practice among the aboriginal African natives, about Bassa, on the Grain Coast.

Lengthy quotations were given from a number of authorities, showing the extensive employment of these remedies in the herbals and pharmacologies of past ages.

Dr. Cox said he thought Dr. Knott had omitted to refer to a book which had considerable interest on the subject, and which was written by Keogh, a distinguished graduate of Trinity College in the last century.

Dr. Knott replied.

The Section then adjourned.

SECTION OF OBSTETRICS.

President—F. W. Kidd, M.D.

Sectional Secretary—John H. Glenn, M.D.

Friday, November 25, 1898.

The President in the Chair.

Specimens exhibited.

Dr. Purefoy—Dermoid tumour of the ovary, three cases; ovarian cystomata and cystic ovaries, nine cases; myomatous uteri, seven cases; myomatous uteri, removed by vaginal hysterectomy, two cases; hernial sac; double pyosalpinx.

Dr. Macan—Case of tubercular tubes; fibroma undergoing sarcomatous degeneration removed by panhysterectomy.

Dr. Alfred J. Smith—Four ovarian tumours, two cystic, two solid; three cases of hydrosalpinx; small fibro-myoma enucleated by anterior colpotomy; tubes and ovaries removed by anterior colpotomy; ruptured tubal pregnancy with vermiform appendix; parts of fibrous polypus removed by morcellement; two pieces of omentum with curious history.

Dr. E. Hastings Tweedy—Dermoid tumour of the right ovary; myomatous uterus removed by panhysterectomy.

Dr. T. Henry Wilson—Proliferous ovarian cyst with twisted pedicle.

Dr. J. H. Glenn—Ovarian cystoma, two cases; myomata removed by anterior colpotomy.

Dr. Henry Jellett—Myomatous uterus removed by panhysterectomy; large subperitoneal myoma removed by myomectomy.

The President, Dr. Purefoy, Dr. Jellett, Dr. Hastings Tweedy, and Dr. Macan discussed the specimens.

One Hundred Cases of Abdominal Section. Second Series.

Dr. Alfred J. Smith.—These 100 abdominal sections were performed as follows:—Thirty-nine times for ovarian tumours; four times for the separation of adhesions; nine times for exploratory purposes; twenty-one times for the cure of fibro-myomata; once to enucleate a broad ligament fibro-myoma; four times for tubal pregnancies; four times for the radical cure of the ventral herniæ; four times for double pyosalpinx; once for appendicitis; once for double hæmatosalpinx; once for enucleation of mesenteric cyst; once for Porro's operation; twice for salpingo-ovaritis; twice for hydrosalpinx; once for the enucleation of a broad ligament cyst. The peritoneal cavity was opened twice in performing anterior colpotomy, and three times in performing posterior colpotomy. As to the treatment of fibro-myomata he was not in a position to dogmatise, but he felt it his duty not to accept the simple fact of the presence of a tumour as a sufficient indication for operation; he must be satisfied that its continued presence is in some way or other a menace to life, or that its presence is incompatible with a comfortable existence. Each case was weighed on its merits, and he practised in each case that particular method of operation which seemed to meet the requirements of the particular case. Consequently, it will be observed he did not treat all cases alike; he performed enucleation twice, myomectomy six times, panhysterectomy twice, retro-peritoneal hysterectomy eight times, and double oophorectomy three times, making in all twenty-one operations without a death.

Dr. Smith also read notes of interesting cases from the *technique* which he employs in performing retro-peritoneal hysterectomy, or the displacement method for treating ventral hernia—the preparation of the patient, the sterilisation of instruments, &c.; also notes on the after-treatment of abdominal section cases. Taking the first series of fifty cases, and the present one of one hundred, he performed one hundred and fifty abdominal sections with only two deaths, or a percentage of only 1·3 per cent. nearly.

The President, Mr. Tobin, and Dr. Macan discussed Dr. Smith's paper, and the author replied.

The Section then adjourned.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D. Univ. Dubl.;
P.R.C.P.I.; F. R. Met. Soc.;
Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

Vital Statistics

For four Weeks ending Saturday, December 3, 1898.

The deaths registered in each of the four weeks in the twenty-three principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Average Rate for 4 weeks	Towns	Weeks ending				Average Rate for 4 weeks
	Nov. 12	Nov. 19	Nov. 26	Dec. 3			Nov. 12	Nov. 19	Nov. 26	Dec. 3	
23 Town Districts	24·7	25·1	24·9	25·7	25·1	Limerick -	22·5	23·9	26·7	32·3	26·3
Armagh -	7·1	14·3	14·3	21·4	14·3	Lisburn -	12·8	21·3	21·3	17·0	18·1
Ballymena	22·5	22·5	5·6	11·3	15·5	Londonderry	26·7	15·7	14·1	34·6	22·8
Belfast -	26·9	28·1	27·4	26·4	27·2	Lurgan -	0·0	22·8	36·5	22·8	20·5
Carrickfergus	0·0	11·7	5·8	17·5	8·8	Newry -	4·0	8·1	16·1	20·1	12·1
Clonmel -	43·8	14·6	0·0	24·3	20·7	Newtownards	5·7	28·3	11·3	17·0	15·6
Cork -	23·5	21·5	24·2	21·5	22·7	Portadown -	18·6	30·9	24·7	18·6	23·2
Drogheda -	11·4	38·0	3·8	22·8	19·0	Queenstown	11·5	11·5	17·2	11·5	12·9
Dublin -	29·4	26·8	29·5	30·1	28·9	Sligo -	15·2	10·2	5·1	10·2	10·2
Dundalk -	16·8	16·8	12·6	25·1	17·8	Tralee -	22·4	16·8	11·2	5·6	14·0
Galway -	22·7	30·2	26·4	7·6	21·7	Waterford -	17·9	29·8	17·9	15·9	20·4
Kilkenny -	9·4	9·4	14·2	0·0	8·3	Wexford -	9·0	18·1	18·1	22·6	17·0

In the week ending Saturday, December 3, 1898, the mortality in thirty-three large English towns, including London (in which the rate was 18·2), was equal to an average annual death-rate of 19·1 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·0 per 1,000. In Glasgow the rate was 22·0 In Edinburgh it was 21·5.

The average annual death-rate represented by the deaths registered during the same week in the twenty-three principal town districts of Ireland was 25·7 per 1,000 of their aggregate population, which, for the purpose of this return, is estimated at 1,007,798.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 1·7 per 1,000, the rates varying from 0·0 in thirteen of the districts to 5·8 in Carrickfergus—the 3 deaths from all causes registered in that district comprising one from diarrhœa. The 154 deaths from all causes registered in Belfast comprise one from measles, one from scarlatina, 2 from whooping-cough, 3 from diphtheria, 3 from enteric fever, and one from diarrhœa. Among the 31 deaths in Cork are one from typhus and one from diarrhœa. The 23 deaths in Limerick comprise one from measles and one from enteric fever. The 22 deaths in Londonderry comprise 2 from diarrhœa.

In the Dublin Registration District the births registered during the week ended December 3 amounted to 194—106 boys and 88 girls; and the deaths to 212—107 males and 105 females.

The deaths, which are 34 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 31·6 in every 1,000 of the population. Omitting the deaths (numbering 10) of persons admitted into public institutions from localities outside the district, the rate was 30·1 per 1,000. During the forty-eight weeks ending with Saturday, December 3, the death-rate averaged 26·8, and was 0·3 over the mean rate in the corresponding period of the ten years 1888–1897.

Only 15 deaths from zymotic diseases were registered during the week, being 4 below the average for the corresponding week of the last ten years, and 13 under the number for the week ended November 26. They comprise one from measles, 4 from scarlet fever (scarlatina), one from influenza, 3 from whooping-cough, one from diphtheria, and 2 from enteric fever.

The weekly number of cases of scarlatina admitted to hospital, which had fallen from 26 in the week ended November 19 to 12 in the following week, further declined to 8. Eighteen scarlatina patients were discharged during the week, one died, and 87 remained under treatment on Saturday, being 11 under the number in hospital at the close of the preceding week. Nineteen convalescents, in addition, were at Beneavin, Glasnevin, the Convalescent Home of Cork-street Fever Hospital.

Twenty-five cases of enteric fever were admitted to hospital during the week, being 10 over the admissions in the preceding week, but 6 under the number for the week ended November 19.

Thirty patients were discharged during the week, and 120 remained under treatment on Saturday, being 5 under the number in hospital on the previous Saturday.

The hospital admissions for the week included, also, one case of typhus and 2 cases of diphtheria. Ten cases of the former disease and 6 of the latter remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system, which had fallen from 53 in the week ended November 19 to 46 in the following week, rose to 57, or 13 over the average for the corresponding week of the last ten years. The 57 deaths comprise 44 from bronchitis and 10 from pneumonia.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N., Long.* 6° 15′ *W., for the Month of November,* 1898.

Mean Height of Barometer, - - -	29·789 inches.
Maximal Height of Barometer (on 18th, 9 p.m.),	30·312 ,,
Minimal Height of Barometer (on 25th, 9 a.m.),	28·761 ,,
Mean Dry-bulb Temperature, - -	45·6°.
Mean Wet-bulb Temperature, - -	44·2°.
Mean Dew point Temperature, - -	42·5°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·278 inch.
Mean Humidity, - - - -	89·8 per cent.
Highest Temperature in Shade (on 2nd), -	62·7°.
Lowest Temperature in Shade (on 22nd), -	29·0°.
Lowest Temperature on Grass (Radiation) (on 22nd), - - - - -	26·2°.
Mean Amount of Cloud, - - -	59·5 per cent.
Rainfall (on 17 days), - - -	4·435 inches.
Greatest Daily Rainfall (on 23rd), - -	1·732 inches.
General Directions of Wind, - - -	S.W. & W.

Remarks.

November, 1898, was a month of surprises. Opening mild and changeable, with fresh S.W. winds, it afterwards became fine, quiet, and at times foggy. A brief period of frost on the 22nd was followed by a rainstorm of exceptional severity and persistence; so that in four days 3·230 inches of rain fell in Dublin; 3·58 inches at Cloneevin, Killiney; 4·72 inches at Fassaroe, Bray; 3·578 inches at Newcastle, Co. Wicklow; 3·350 inches at Greystones; 4·18 inches in the Phœnix Park; and 3·330 inches at Glasnevin. Another cold spell followed this storm, but the last day of the month was mild.

In Dublin the arithmetical mean temperature (46·2°) was decidedly above the average (44·7°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 45·6°. In the thirty-three years ending with 1897, November was coldest in 1878 (M. T.=38·2°), and in 1870 (M. T.=42·2°), warmest in 1881 (M. T.=50·3°). In 1897 the M. T. was 48·6°.

The mean height of the barometer was 29·789 inches, or 0·071 inch below the corrected average value for November—namely, 29·860 inches. The mercury rose to 30·312 inches at 9 p.m. of the 18th, and fell to 28·761 inches at 9 a.m. of the 25th. The observed range of atmospheric pressure was, therefore, 1·551 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 45·6°, or 6·1° below the value for October. The arithmetical mean of the maximal and minimal readings was 46·2°, compared with a twenty-five years' average of 44·7°. On the 2nd the thermometer in the screen rose to 62·7°—wind, S.W.; on the 22nd the temperature fell to 29·0°—wind, W.S.W. The minimum on the grass was 26·2°, also on the 22nd.

The rainfall was 4·435 inches, distributed over 17 days—the rainfall was much above, while the rainy days were equal to, the average. The average rainfall for November in the twenty-five years, 1865–89, inclusive, was 2·452 inches, and the average number of rainy days was 17·0. In 1888, 6·459 inches fell on 26 days. On the other hand, the rainfall in 1896 was only ·664 inch on 9 days. In 1897, 3·422 inches fell on 14 days.

High winds were noted on 7 days, and attained the force of a gale on the 2nd and 3rd. The atmosphere was more or less foggy in Dublin on the 8th, 9th, 10th, 15th, 17th, 19th, and 27th. Solar halos were seen on the 1st and 22nd. Hail, or sleet and snow fell on the 3rd, 22nd, 25th, and 29th. Lightning was seen on the 3rd, 27th, and 28th, and a thunderstorm occurred on the morning of the 26th.

The rainfall in Dublin during the eleven months ending November 30th amounted to 25·982 inches on 173 days, compared with 15·378 inches on 141 days during the same period in 1887, 22·716 inches on 174 days in 1896, 27·503 inches on 193 days in 1897, and a twenty-five years' average of 25·292 inches on 177·4 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in

November was 4·609 inches, distributed over 16 days. Of this quantity 1·900 inches fell on the 23rd. From January 1, 1898, up to November 30, rain fell at that station on 156 days, and to the total amount of 28·786 inches. The corresponding figures for 1897 were 38·185 inches on 188 days.

At Cloneevin, Killiney, Co. Dublin, 5·05 inches of rain fell on 19 days, compared with a thirteen years' average of 2·755 inches on 16·9 days. The maximal fall in 24 hours was 2·06 inches on the 23rd. Since January 1, 1898, 26·77 inches of rain have fallen at this station on 173 days. The corresponding figures for 1897 were 28·64 inches on 184 days.

At the National Hospital for Consumption, Newcastle, Co. Wicklow, the rainfall in November was 4·721 inches, distributed over 18 days. The maximal fall in 24 hours was 1·652 inches on the 23rd. Since January 1, 1898, the rainfall at Newcastle has amounted to 31·197 inches on 157 days. The corresponding figures for 1897 were 35·528 inches on 172 days. On November 16th the screened thermometers at the National Hospital rose to 62·2°, on the 29th they fell to 31·0°.

COMPLETE REMOVAL OF THE STOMACH.

ANOTHER, and the fourth successful, case of œsophagoduodenostomy is reported from San Francisco. The *Pacific Record of Medicine and Surgery* states that Dr. George Childs-MacDonald operated, on June 15th, for carcinoma of the stomach, removed the entire organ, and united the œsophagus with the duodenum by means of a Murphy button. On June 26th the abdominal wound was dressed for the first time, and the stitches were removed. The temperature of the patient was normal.

PRACTICAL HINTS ABOUT THE ADMINISTRATION OF DRUGS.

H. C. WOOD (*American Medico-Surgical Bulletin*, July 10, 1898) says that the capsule is much superior to the pill as a means of administering powders or dry drugs, but if liquids are given in this way the soft capsule, which can be hermetically sealed and be easily swallowed, should always be used. As a vehicle for nauseous drugs the aromatic elixir of the U. S. Pharmacopœia is superior to the syrups of tolu, wild-cherry bark, &c., which are loaded with sugar and disorder the digestion, whilst they often fail to cover the disagreeable taste; it should be remembered, however, that it contains about 92 per cent. of alcohol. The salicylates should always be administered in milk.

PERISCOPE.

GASTRIC ULCER, WITH DEATH FROM PULMONARY EMBOLISM.

Rosenthal (*Hospitalstidende*, June 22, 1898) reports a case of gastric ulcer with profuse hæmatemesis, in which the patient was being nourished with nutrient enemata and seemed to be doing well, when suddenly severe dyspnœa with cyanosis supervened and the patient rapidly sank and died. At the necropsy the cause of death was determined to be pulmonary embolism. The ulceration of the stomach was extremely superficial and was found only after most careful examination of the mucous membrane with a hand-lens.

THE MAGNAN SYMPTOM OF CHRONIC COCAINISM.

Prof. Magnan has directed attention to a very characteristic symptom presented by individuals suffering from chronic cocaïnism. The symptom consists of hallucinations connected with general sensation, the patient feeling foreign substances under the skin, in the shape of fine more or less regularly round bodies. Dr. Rybakoff reports recently that he has had an opportunity to verify the phenomenon in two cases of chronic cocaïnism. In one of the cases the foreign bodies appeared to the patient to be constantly changing position, sometimes being felt as small balls, sometimes as small kernels, fine powder or the finest dust. The symptom is of especial interest, as it is probably only to be found in cases of cocaïn-poisoning, and as it is the only symptom not present in other forms of intoxication. The hallucinations frequently lead to ideas that under the skin are found microbes, worms, cocaïn crystals, &c. On account of its frequent application in surgery, the use of cocaïn is apt to lead to intoxication, and it is therefore well to be on the look-out for this symptom, so that if the latter should present itself, the use of the drug may be discontinued, and thus lead to the prevention of other and more dangerous symptoms. The reason that the symptom has hitherto been but little noticed is probably due to the circumstance that the physician not infrequently finds the patient in a condition of hallucinatory confusion in which it is impossible to get reliable answers to questions, and because the symptoms bother the patient very little, and he finds it unnecessary to report it to his physician. The diagnostic importance of the symptom was emphasised in a case reported by Prof. Korsakoff. His patient was suffering from multiple neuritis and complained constantly that she felt worms under the skin. The use of cocaïn was therefore inquired into, and it was ascertained that she was being treated gynæcologically with vaginal tampons soaked in a solution of cocaïn. When this treatment was discontinued, she ceased to complain.—*Neurol. Centralblatt.*

TEARING AWAY OF THE BLADDER FROM ITS PELVIC CONNECTIONS.

F. Bird (*Australasian Medical Gazette*, May 20, 1898) reports the case of a lad, thrown from his horse and suffering from concussion of the brain, in which the bladder was found distended, together with symptoms of retention of urine. Examination had shown no bruising of the peritoneum, no tenderness or fulness and no bleeding from the urethra. A catheter at once drew blood, but no attempt, even under chloroform, succeeded in withdrawing urine; a large quantity, however, was removed by aspiration. On operation it was found impossible to reach the bladder through the perineal incision. The triangular ligament was torn and a traumatic cavity was found behind the pubes. Supra-pubic cystotomy was performed, and through the abdominal incision it was found that practically all the structures that anchor the bladder to the pelvis had been torn away. Several fingers could be freely passed from above behind the pubes into the perineal wound. The pubo-prostatic ligament had disappeared and two small thin shells of bone were discovered pulled off the pubes. With the aid of the finger in the bladder the remains of the membranous urethra were found as a small tuft on the anterior portion of the prostate. The lumen of the tube was closed by spasm of the muscular fibres, producing complete retention. The parts were carefully cleansed, and a rubber catheter was passed through the abdominal wound, the bladder, the torn membranous urethra, and the perineal wound. The space at the back of the pubes produced by the injury was packed with gauze about a drainage tube, which was removed after three days; although light packing was continued for a week. At the end of this time packing was discontinued and a catheter was passed through the penis into the bladder, the distance from the bulbous urethra being about three inches. There was considerable cystitis, but no cellulitis or abscess-formation. Several months after the injury micturition was perfect and a No. 10 sound could be passed with ease.

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MEDICAL SCIENCE.

FEBRUARY 1, 1899.

PART I.

ORIGINAL COMMUNICATIONS.

ART. V.—*One Hundred Cases of Abdominal Section.* Second Series.[a] By ALFRED SMITH, F.R.C.S.I.; Gynæcologist to St. Vincent's Hospital, Dublin.

I HAVE pleasure in presenting before you a report of work done by me in gynæcological abdominal surgery since May, 1896. I published in that year a report of my first 50 abdominal sections, and I now bring under your notice a report of 100 cases as follows:—

The 100 abdominal sections were performed as follows:—Thirty-nine times for ovarian tumours (28 cystic, 9 solid, and 2 dermoid); 4 times for the separation of adhesions; 9 times for exploratory purposes; 21 times for the cure of fibro-myomata; once to enucleate a broad ligament fibro-myoma; 4 times for tubal pregnancies; 4 times for the radical cure of ventral hernia, following the operations of my friends; 4 times for double pyosalpinx; once for appendicitis; once for double hæmatosalpinx; once for enucleation of mesenteric cyst; once for Porro's operation; twice for salpingo-ovaritis; twice for hydrosalpinx; once for the enucleation of a broad ligament cyst. I also opened the peritoneal cavity twice in performing anterior colpotomy, and three times in performing posterior colpotomy—making in all 100 cases with two deaths.

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[a] Read before the Section of Obstetrics of the Royal Academy of Medicine in Ireland, on Friday, November 25, 1898.

Fibro-myomata.—As to the treatment of fibro-myomata I am not in a position to dogmatise, but I felt it my duty not to accept the simple fact of the presence of a tumour as a sufficient indication for operation. I must be satisfied that its continued presence is in some way or other a menace to life, or that its presence is incompatible with a comfortable existence. Each case was weighed on its merits, and I practised on each that particular method of operation which seemed to me to meet the requirements of the particular case. Consequently you will observe that I did not treat all cases alike. I performed enucleation twice, myomectomy six times, panhysterectomy twice, retro-peritoneal hysterectomy eight times, and double oöphorectomy three times—making in all 21 operations without a death.

Double Oöphorectomy.—Double oöphorectomy was at one time a fashionable treatment for fibro-myomata, and had many strong advocates. I never quite liked the operation; still I must confess that my own experience is favourable. I do not consider it an operation of election, but one of expediency. You can always proceed to the major operation later on should the case require it.

Myomectomy and Enucleation.—Myomectomy and enucleation are, in my opinion, the ideal conservative operations for fibro-myomata, but unfortunately the percentage of cases in which you can employ either operation is low indeed. The essence of either operation is the removal of the tumours with the preservation of the uterus, or at least as much of it as will allow of the proper performance of its physiological functions. The following case has a direct bearing on this subject:—

No. 95.—M. N., aged thirty-eight, married one and a half years, was sent up to me by Dr. J. Dowling, Tipperary, in Oct., 1897. She suffered from a very large fibro-myoma (a diagram of which is here shown). A large broad pedicle connected the tumour with the uterus, and it seemed to be an extension from the left cornua of the uterus. I felt, although she suffered from no urgent symptoms, that if the patient became pregnant there would be no place for a viable child plus the tumour. I accordingly performed myomectomy. The left cornua of the uterus was cut well into by a wedge-shaped incision. This was brought together by interrupted silk sutures. The recovery was uninterrupted. On May 28th of this year I heard the patient had been again increasing in size, and it was feared there was a return of the tumour. However, on questioning her, she told me she had not seen her changes since Dec. 14th. On palpation a pregnant uterus up to the umbilicus was made out, and the fœtal heart heard. The patient returned home, went on to full term, and gave birth to a strong, healthy male child. I have letters confirming this information from Dr. Russell, Raheen, Bansha, who attended her, and Dr. C. Ryan, Tipperary.

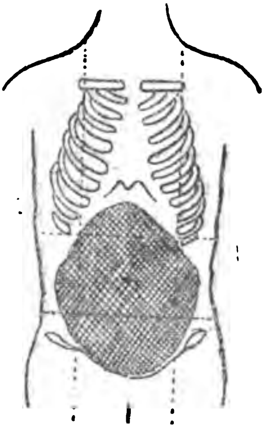

Fig. 1.

Retro-peritoneal Hysterectomy.—The operation of retro-peritoneal hysterectomy was performed eight times. In all cases the tumours were very large. I showed them from time to time at this Section of the Academy. All were operated on in the Trendelenburg position. The technique employed by me was based on the principle of primary ligation of the main arterial trunks supplying the uterus and the appendages, thus reducing to a minimum the loss of blood. Before an incision is made, after exposing the tumour, the bladder is distended with creolin solution, to map out its boundaries. This I consider essential from the frequency with which I found the bladder drawn up by the tumour. Having satisfied myself as to the position of the bladder, I make an incision across the front of the anterior wall of the uterus, well above the utero-vesical fold, taking care not to go too deeply. I then with my fingers push off the bladder from the uterus. Traction is being made all the while by my assistant on the tumour, until I come to the junction of the portia-media and supra-vaginal portion of the cervix. I then feel for the uterine artery, and, having located its position, I clear it, pass a long aneurysm needle under it, and ligate it with stout silk. The same procedure is followed on the opposite side. Having ligated both uterine arteries, I feel for and ligate both ovarian arteries close to the brim. All this time the broad ligaments are intact. A flap of peritoneum is fashioned off the posterior wall of the uterus by incising a track from one broad ligament to another. The peritoneum is then peeled back and preserved; with scissors I snip down the broad ligaments on either side, leaving the tumour and uterus supported by the stripped cervix, which is then amputated by a modified wedge incision. The spilling of venous blood from the tumour is controlled by clamp forceps, thus preventing fouling of the parts and the blurring of your vision.

Treatment of Pedicle.—The upper portion of the mucous membrane in the cervical canal is dissected out, and the hole is swabbed with corrosive sublimate solution 1 in 1,000. I do not suture or bring together the surface of the stump, but the entire surface is completely covered over by accurate suturing of the large anterior and posterior flaps, leaving the pedicle completely retro-peritoneal. Interrupted silk sutures also bring together the layers of each broad ligament.

Panhysterectomy I performed twice. The technique is precisely that employed in retro-peritoneal hysterectomy up to the amputation of the cervix. Instead of amputation the vagina is opened into from above by cutting down on an instrument placed in the vagina to distend it. Having entered the vagina, the cervix is freed by clipping it with a scissors under the guidance of the finger. The anterior and posterior flaps of peritoneum are united just as accurately as in retro-peritoneal hysterectomy.

The following case will, I think, be of interest as showing how nature sometimes effects a cure:—

Case No. 102.—Drs. Beamish and Smartt, of Newry, sent me the patient in November, 1897. She had noticed a lump in her abdomen for the past eight years, and she stated it got much larger within the past two years. It extended above the umbilicus, and filled out the flanks; it was very mobile. The sound could be passed only 2 cm., and the tumour palpated quite separate from the uterus. Assisted by Dr. Tobin and Mr. Philip Murphy I opened the abdomen; the tumour was easily drawn out, and it was much twisted around its pedicle from left to right—in fact, so completely as to have amputated the cervix uteri through the portia-media; a thin, translucent layer of membrane alone held cervix and the remainder of the uterus together. This membrane was easily cut through; it contained no blood vessels. The pedicle left consisted of vaginal portion and a small part of the portia-media, and it was completely sealed over by fibrous tissue. The tumour consisted of the remainder of the uterus and a large fibro-myoma growing from the

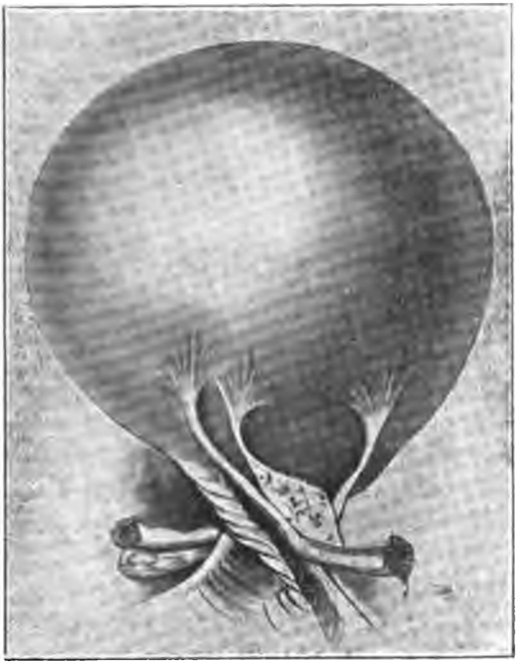

Fig. 2.

fundus, with the tubes and ovaries hanging quite free on either side. This is the most perfect example of amputation by rotation I ever saw, and it is remarkable that there were no adhesions with surrounding structures. Some members may remember this unique specimen having been shown at this Section of the Academy. Fig. No. 2 represents the tumour twisted, and No. 3 untwisted.

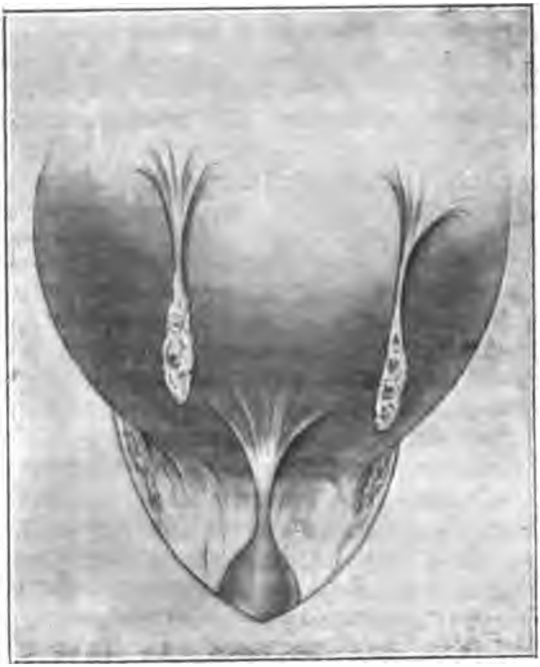

Fig. 2.

Ventral Hernia.—In operating on small ventral hernia following operations I adopted a displacement method. The sac is isolated and incised; after exposing the contents, which are reduced, the sac is then loosened freely from its surrounding attachments. A second incision is made through the skin, superficial fascia and fat down to the muscular layer, about 1½ inches from the edge of the wound. A forceps is pushed obliquely through the muscular wall, up to the peritoneum at the edge of the incision; the free ends of the sac are seized and drawn through. Interrupted silk sutures are passed through the skin, fat, muscular and aponeurotic layers.

With large hernia I find it necessary to excise the sac, freshen the edges freely, and suture with interrupted silk sutures. I hope in the near future to adopt a modification of the flap and displacement method for extensive cases of ventral hernia, the results of which I hope to place before you.

Ovarian Tumours.—Of the 39 ovarian tumours, 28 were cystic, 9 solid, and 2 dermoid; 13 were complicated and 16 simple. Some of the complicated cases gave considerable trouble in the separation of adherent intestine, and in the arrest of surface hæmorrhages. On many occasions I found it necessary to split the wall of the cyst, so as to free the intestine, and while splitting the cyst wall I was careful not to leave any of the cyst epithelium. All cases recovered.

The following case is an interesting one, as showing the secondary troubles of abdominal surgery:—

Case 121.—N. H., aged twenty-five, the mother of two children, the younger five months old, was admitted to St. Vincent's Hospital suffering from enormous distension of abdomen, which began to form after her last confinement. On May 4th of this year I opened abdomen, assisted by Mr. E. White. There was a great quantity of free ascites. I removed a solid ovarian tumour, size of fifth month pregnant uterus. The peritoneum was covered all over with organised lymph. About thirty hours after operation pulse ran up to 126, temperature 103·6°, and I was hurriedly sent for, as the patient had taken a change for the worse. I found abdomen much distended; percussion was resonant in the flanks, dull in the centre. Four grains of calomel, followed by mist. rosæ, and two turpentine enemata failed to move the bowels. I reopened abdomen; there was ascitic fluid partially encysted in the centre. The small intestines were not distended, but the cæcum was twisted on itself, distended like an inflated penny balloon; it was quite dark in colour, without lustre, and seemed on the point of bursting. A constricting band of organised lymph had bound it quite tightly. This I cut through between double ligatures. I was afraid to restore the cæcum. I brought it out through the abdominal wound, passed a bone pen-handle, previously sterilised by boiling, through the mesentery to act as a support, and stitched the cæcum to the abdominal wall. I opened it and irrigated

bowel with saline solution. For several days the bowels moved regularly through the artificial anus, but if purgative medicine was given a considerable quantity passed per anum. The patient rapidly regained strength; she left hospital at the end of June; she returned early in last October. She had gained greatly in appearance—had put on flesh—in fact, one could hardly recognise her. The cæcum had retracted almost entirely, leaving only a very small fistula; the bowels, as a rule, move per anum, but occasionally, while lying in bed, fæces pass through the fistula-anus. I thought it safer to let sleeping dogs lie, so I sent her again to the country for a few more months in the hope that the fistula will close by natural efforts.

Tubal Pregnancy.—I had three cases of ruptured tubal pregnancy, and one case (No. 109) where I removed the distended tube before it ruptured. I have given full details of these cases elsewhere; I merely content myself with showing a photograph of specimen removed from Case 55—a splendid example of ruptured tube with fœtus. All cases did well.

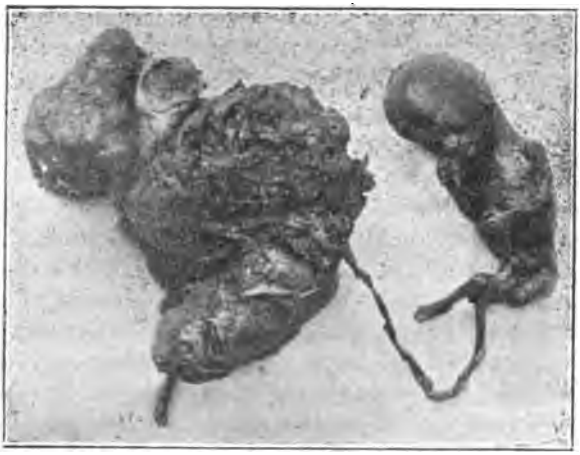

Fig. 4.

Colpotomy.—Both anterior and posterior colpotomy was performed five times—once to enucleate a small fibro-myoma, once to perform double salpingo-oöphorectomy, and three times to separate adhesions in a backward displaced uterus.

As an alternative route to the abdominal cavity it has its position in gynæcology, and certainly one cannot but be struck with the absence of shock and rapid convalescence. Nevertheless, the number of occasions in which I could perform the operation were few, and in one case I had considerable trouble in arresting hæmorrhage, having to ligature both uterine arteries before controlling it properly.

Double Pyosalpinx.—Four cases were treated; in all the cases very extensive adhesions had to be dealt with. No. 62 burst during removal, but the peritoneum was well douched out; there was no bad result. Nos. 71, 124, and 130 I was fortunate to be able to get away without rupturing.

Appendicitis.—The vermiform appendix played an important part in Cases 63, 84, and 139. The following case is of greatest interest:—

No. 63 came to St. Ann's Ward at the end of Jan., 1897, and gave a history that she was confined on the floor before the arrival of either nurse or doctor. On the second day after confinement she got a rigor, and suffered great pain in the lower part of abdomen. She was treated with hot stupes and douching. I saw her five months after confinement, and palpation revealed a mass as in diagram. The bimanual under ether gave the impression of an ovarian abscess. Abdominal section revealed the tube and ovary

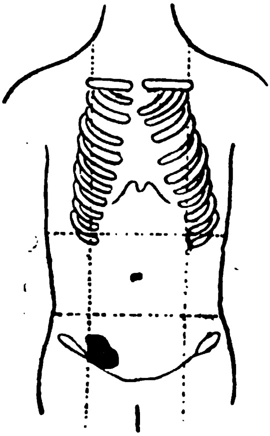

Fig. 5.

normal, but adherent to the ovary was the vermiform appendix, which was perforated, and was surrounded by a quantity of pus. I excised the appendix and left tube and ovary. On thinking over this case subsequently I never remember a case of either ovarian abscess or pyosalpinx which seemed to float so high in the pelvis. This case is interesting, from the history, as a cause of rise of temperature following a confinement, from the facts that both tube and ovary were normal and that the position of the tumour of the appendix was not classical.

Fatal Cases.—I regret very much to have to report two fatal cases, but it is a matter for congratulation that the sad endings can in no way be attributable to negligence, or to a break-down in our aseptic system. I read the cases for you, you can judge for yourselves:—

First Case (No. 115).—A married woman, aged thirty-nine, no family, complained of a swelling in her abdomen for six years, but that latterly it grew very rapidly. She had seen no change for six months. The abdomen was greatly distended; the tumour pressed so much on the diaphragm as to cause dyspnœa; the patient had to be propped up in bed. The only treatment was to perform a Porro. The abdominal cavity was opened from ensiform cartilage to pubes, the tumour and uterus were turned out, and the entire mass was removed as in retro-peritoneal hysterectomy. Patient was progressing favourably, the bowels acted by enema—a good motion on the second day—pulse 80, temp. 99·2° at night. On the evening of the fourth day she complained of pain referred to left hypochondriac region. She said she felt distended and inclined to vomit. I unfortunately temporised, as the lower part of the abdomen was quite flat, pulse 100, aspect good. However, next morning the patient was very ill; regurgitative vomiting had set in. I reopened the abdomen, found a loop of the ileum distended, and a slough the size of a half-crown formed in its most distended portion. I drew out the loop, and formed an artificial anus. The patient sank and died the sixth day after operation.

Second Case (No. 134).—This case was an operation undertaken to remove a hydrosalpinx. There were extensive adhesions, and there was considerable difficulty in separating the intestines. Patient seemed to be doing well, but the bowels would not move in response to ordinary remedies, and several enemata were given without benefit. Pulse 100, temp. 103°, tongue moist, aspect good, no nausea or vomiting, abdomen distended. Influenced by last case

I reopened abdomen, assisted by Mr. M'Ardle. The ileum was greatly distended, quite pale in colour, no fluid in posterior *cul-de-sac* or flanks, or any trace of peritonitis. The loop of intestine that was separated from the tube was most carefully examined, fearing there might be some damage there; none was found. The entire loops were drawn out of abdomen on to a warm saline towel, and carefully examined, without result. The intestine seemed to have lost all power; there was not the slightest attempt at peristaltic movement. Patient died on the sixth day after operation. It is of interest to note the patient never suffered from either nausea or vomiting; she took nourishment quite freely, and her aspect was always good. I put the cause of death down to ileus paralyticus for want of a better term.

In the case of death following the Porro operation, I could not for a long time explain the local sloughing of the intestine. I thought I must have squashed a knuckle of intestine against the tumour, or that I had inadvertently caught it in a ligature. But Professor Kocher, of Berne, in a recent number of the *British Medical Journal*, in describing local necrosis of the intestine, says:—" In the majority of my *post-mortem* examinations I found very important lesions in the wall of the intestine above the seat of obstruction. They consist in the formation of circumscribed necrosis of the mucous membrane going on to sharply circumscribed ulcerations through the whole thickness of the wall, and giving rise eventually to perforation. The cause of these ulcerations is not, as has been stated, due to the pressure of hard fæcal masses pressing for some time on the same spot. You may find the same ulceration in the ileum and jejunum to a very great extent where the bowel is filled with liquid contents. The cause is the same as that which acts in cases of incarcerated hernia (as I have shown long ago) above the seat of incarceration, and the same you can produce artificially by over-distension of a part of the bowel by injection of gas or fluid. You will see that without the slightest interference with the mesenterial circulation the bowel gets quite blue by venous stasis. As a consequence of this ecchymoses may form in the mucous membrane, the nutrition is altered, and the protective influence of the epithelium, which has been proved to be of such importance, is destroyed, and the mischief is done. Absorption of bacteria and of the toxic products of fæcal contents begin from that very moment, and if you do not step in in time, your patient will die either from general intoxication, with symptoms of weakness of the heart and collapse, or he will die from local intoxication with necrosis of the mucous membrane (first at the places of the above-mentioned ecchymosis), going on to ulceration and perforation."

Secondary Operations.—Apart from the secondary operations detailed above, I reopened the abdomen in Case 80 for secondary hæmorrhage due to slipping of pedicle suture, and in Case 103, for exceptional circumstances. The operation was a retro-peritoneal hysterectomy, which was completed without a hitch. On the evening of the operation diarrhœa set in; as many as twelve fluid motions were passed inside of a few hours without pain or distress. Next morning patient began to vomit and yawn, toss her arms about restlessly; pulse 120, temperature 98°. On examination the abdomen was distended and quite tympanitic. Mr. Tobin and Mr. M'Ardle saw the case in consultation, and we deemed it advisable to reopen, the symptoms pointing to secondary hæmorrhage. On opening the abdomen nothing was found abnormal; there was no blood or trace of peritonitis. The abdomen was reclosed, and the patient made an uninterrupted recovery.

Erythema.—A peculiar erythematous rash, very much like measles, was observed in Cases 61, 132, and 148. The patients complained of a hot, prickling sensation under the skin; there was no rise of temperature or constitutional symptoms present. The rash was best marked on the wrists, buttocks, and chest in Case 61. Bullæ and large vesicles formed over the chest, and there was a general desquamation. The rash appeared about the fifth day, and disappeared about the tenth day.

Flushing the Peritoneum.—The peritoneum was flushed four times in Cases 55 and 62 for soiling of the peritoneum with suspicious cyst contents, in Cases 80 and 100 to restore collapsed patients: in 80 for bad secondary hæmorrhage, and in 100 after a difficult retro-peritoneal hysterectomy.

Drainage.—I did not consider it necessary to use a drain in any of the 100 cases.

General Preparation of Patient.—All cases except emergency ones are kept under observation some days before operation to investigate the condition of heart and kidneys, and to regulate the bowels. If they are anæmic and much run down, I administer iron and arsenic, and feed them up well. This course I consider essential, as the phagocytes are better able to resist infection and the convalescence is quicker.

Particular Preparation of Patient.—The entire body of the patient was cleansed by a bath or otherwise, as seemed most suitable. The skin of the region to be operated on was thoroughly scrubbed with monkey-brand soap and very hot water, shaved when necessary, then washed down with corrosive sublimate solution, and covered with a corrosive sublimate poultice. Immediately before operating the abdomen was washed with ether and then sponged with hot corrosive sublimate solution. Dry sterilised towels are spread over the chest and thighs of the patient as a further protection against the danger of infection.

Sterilising Hands.—The stages for sterilising the hands are as follows:—(1) Pare and cleanse nails with scissors. (2) Soften hands with a lather of soap, then scrub thoroughly with soap and hot water, paying special attention to folds of skin and nails and using aseptic nail-brush. (3) Immerse hands for two minutes in corrosive sublimate solution, 1 in 500, made tepid, and leave them wet. (4) Keep hands moist with the same solution during operation.

If I had been operating on a septic case, I follow the method of sterilisation of my hands which I learned as a student in Professor Billroth's clinic, Vienna—viz., after a thorough washing and scrubbing with soap and hot water, the hands are immersed in a hot saturated solution of permanganate of potassium, until stained a deep mahogany colour, after which they are immersed at once in a saturated solution of oxalic acid, as hot as can be borne. This decolourises and completely sterilises them. I also use sterilised gauze gloves while operating after attending on a septic case.

Sterilisation.—The sister in charge of the ward, assisted by my staff-nurse, superintends every detail of sterilisation. Sterilisation of instruments likely to be required for operation is carried out by boiling them for five minutes immediately before the operation in a solution of 1 per cent. of carbonate of sodium in Schimmelbusche's apparatus. Silk is sterilised by boiling for half an hour in a 1 per cent. solution of carbonate of sodium; it is then placed on glass spools and kept in a bath of corrosive sublimate solution, 1 in 1,000, until required for use. Gauze sponges are used instead of sea-sponges; they are made up of eight layers of butter muslin stitched together at the margin (the usual size, 4 × 4 inches); all sponges, gauze dressings, towels, &c., are sterilised by being placed in Lantenschlager's steam steriliser for one hour at boiling point.

Suture of Abdominal Walls.—The abdominal walls are sutured by interrupted sutures, using fine silk No. 4, or silkworm-gut, taking in the entire thickness of the wall. I use strong curved needles, and feel with my fingers that the aponeurosis is included; all sutures are removed on the eighth day. Stitch abscesses I never see since I employed more perfect methods of sterilisation. In tying the sutures I have been interesting myself as to the exact degree of tension to be employed, as I often thought I tied the sutures too tightly. I accordingly experimented somewhat, and tied loosely with the following result:—

CASE NO. 138.—An easy, solid ovarian; I tied the sutures just tight enough to approximate the edges of the wound without any strangulation of the tissues. On taking off the dressing on the eighth day to remove the stitches, I found two large protrusions of omentum between the first and second and second and third sutures (specimens here shown). The omentum had been a week outside the abdominal cavity, and had grown into the pad. Having examined carefully to exclude any knuckle of intestine, I transfixed them with silk and removed them, returning the stumps. I then refreshened the edges and resutured the openings. It will be interesting to note if there will be any hernia in the near future.

The Dressing.—The dressing employed is very simple. It consists of a sterilised pad of absorbent cotton, folded in a few layers of ordinary butter muslin, held in position by strips of rubber plaster, and over all a flannel binder.

After-treatment of Abdominal Section.—The usual practice is for patients to receive nothing but sips of hot water for the first forty-eight hours, then milk and weak tea. This practice is not followed slavishly, as frequent variations have to be made, the patients in some cases getting stimulants and Valentine's extract of beef as soon as they can take it.

Pain.—I employ codeina tabloids or phenacetin. Two tabloids of codeina, to be followed every second hour by one tabloid, frequently give much relief. Phenacetin is given in 10 gr. doses. I do not absolutely deprive patients of the soothing influence of morphin. I believe intestinal adhesions, if they are going to take place, form inside a few hours; consequently, if a patient suffers much pain—say 12 hours after operation—I give ¼ gr. morphin hypodermically.

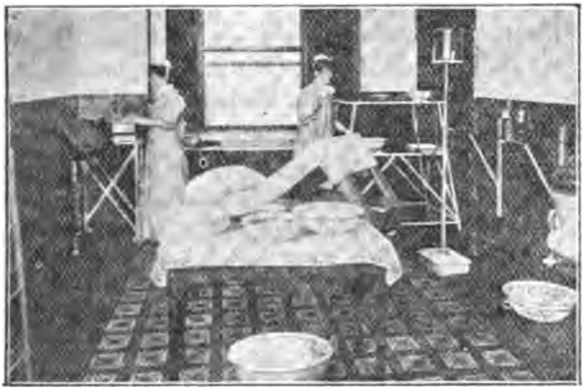

Fig. 6.—Gynæcological Theatre, St. Vincent's Hospital. Installation for Abdominal Section.

Flatulence.—If not relieved by a turpentine enema or carminatives, I found it quickly benefited by touching the abdominal walls lightly with a Paquelin's cautery, especially where there is meteorismus.

Vomiting.—If the ordinary routine methods failed the stomach was washed out, and three cases of persistent ether vomiting were at once stopped by the patient drinking a copious draught of cold water.

Purgatives.—Purgatives are given the second morning after the operation; a saline mixture, such as mist. rosæ or mist. sennæ co., is preferred. Sometimes calomel (3 grs.), to be followed by a Seidlitz powder, is selected. When the bowels did not act I ordered a turpentine enema.

Abdominal Belts.—I have given up for years the use of abdominal belts after abdominal sections; herniæ are best prevented by proper suturing. An abdominal belt, to be of any use, must increase intra-abdominal pressure—an infallible way to find the weakest spot.

I have now, gentlemen, placed before you my work in abdominal surgery since May, 1896. Taking my first series of 50 cases and the present one of 100, I have performed 150 abdominal sections with only 2 deaths, or a mortality of 1·3 per cent. nearly.

ART. VI.—*Cerebro-spinal Fever in India.* By W. J. BUCHANAN, B.A., M.B., &c. (Dubl.); Diplomate in State Medicine; Captain, Indian Medical Service; Superintendent, Central Jail, Bhagalpur, Bengal.

THE very severe and fatal form of fever known as cerebro-spinal is, as far as I am aware, of rare occurrence now-a-days in Ireland, but it will be remembered by older medical men as having prevailed in a widespread manner in Dublin, and the neighbourhood, in 1866-67. My own interest in the disease (apart from having learned of it from teachers who went through the Dublin epidemic) dates from 1888, when, as Dublin University travelling prizeman, I was studying in Vienna, where I saw some cases of the same epidemic in which Weichselbaum in 1887 described the *Diplococcus intracellularis.*

So having recently had experience of this disease in three central jails in Bengal, I have thought it may be of interest to the readers of the *Dublin Journal of Medical Science* to give a brief account of this fever as met with in India.

As I have shown, in an article read at the recent meeting of the British Medical Association in Edinburgh, the disease has been known and recognised in India for many years past, but the fact of its existence in tropical countries seems to have escaped the notice of all the authorities I have read who have treated of the disease—*e.g.*, Dr. T. W. Grimshaw, writing of the disease (*apud* Quain), merely notes that it is widely distributed in *temperate* climates; the writer of the article in Allbutt's "System of Medicine" also ignores its tropical distribution, and, moreover, quotes the erroneous statement of Hirsch—that its southern distribution is limited by latitude 30° N. This is absolutely wrong. This line would exclude all India and Burma, except the very north of the Punjâb, as well as in the other hemisphere Southern California, yet the disease is well known in India, and cases have recently been reported from California.[a] Moreover, as will be seen presently, there is some reason to believe that the disease is not unknown in the West Indies. Again, Notter and Frith (in their "Hygiene"), though they note an outbreak in Fiji in 1885, make no reference to the disease in India or elsewhere in the tropics. Still more extraordinary, Councilman, in his exhaustive and masterly monograph on cerebro-spinal meningitis (Report to the State Board of Health, Massachusetts, Boston, 1898), though he gives a full sketch of the history of this fever in Europe and America, nowhere alludes to its possible existence in India.

A very brief history of the disease as recorded in India only can be given here. Just as in Dublin and in Germany, so in India, cerebro-spinal fever has been chiefly recognised among bodies of men living together in regimental barracks, or in prisons.

The first case I can find recorded in Indian reports or medical literature is one referred to by the late Brigade-Surgeon Vandyke Carter, of the Indian Medical Service, who, in publishing a case of this disease (*Indian Medical Gazette*, December, 1886), refers to the fact that the case published on p. 436 of his volume on "Spirillum, or Relapsing Fever," was, he was later inclined to think, not spirillum, but cerebro-spinal fever. If so, this case was met with in 1878, and is the first case I can find recorded in India. Surgeon-Major H. P. Dimmock, I.M.S., was the first to record a serious outbreak of the disease. He met with 38 cases, 27 of which were fatal, in the Shikarpur jail (Sinde) in 1883. In the year 1885 a somewhat severe outbreak occurred at Chinawar in the Punjâb among prisoners at work on making canals from the River Chenâb. In 1884 the emigration depôts in Calcutta (for supplying labour for the West Indies) were certainly affected, and in October of the same year the large central gaol at Alipur (Calcutta) had a very severe outbreak—39 cases with 16 deaths. I have in another place suggested that it is not impossible that the Calcutta depôts and jail became affected by means of returned emigrants from Demerara, Trinidad, or other places in the West Indies. It is certain at least that both the Alipur jail and the emigration depôts have ever since been more or less infected—that is to say, cases have for the past dozen years or so continued to be met with in both places, as well as in emigrant ships trading between Calcutta and the West Indies. Since the first recognition of the disease in Calcutta every year one or more Bengal jails have produced a few cases at least, at irregular intervals, in the manner so characteristic of this disease.

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[a] Brainerd, Pacific Medical Journal, June, 1898.

Councilman, in his monograph, has sketched the history of cerebro-spinal fever (or cerebro-spinal meningitis, as German and American authors prefer to call it) in North America and in Europe. The United States have had ample experience of it ever since the beginning of the present century. It was also especially widespread during the Civil War, from Carolina to New York.

Hirsch has divided the history of the disease into four periods—(1) from 1805 to 1830, isolated epidemics in Europe and the United States; (2) 1837 to 1850, widespread outbreaks in France, Italy, Denmark, and Algiers; (3) 1854 to 1875, North Africa, South America, United States, and especially Ireland. (4) Since 1875 the disease has shown itself chiefly in small isolated epidemics in Germany, Italy, and the States. In spite, however, of such a diffused extension the disease has never claimed the character of a disease of any people, nor has it ever become epidemic or endemic to the extent diseases like cholera, plague, or typhoid fever are so.

To show the identity of the disease as seen in India with that known in Europe and America a very few cases must be quoted. I have already published three cases in my B. M. A. article.[a] In one of these I had the opportunity of finding the *Diplococcus intracellularis* of Weichselbaum.

The following four cases are taken from a series of seventeen which were met with in the Central Jail at Bhagalpur, Bengal, during 1897-8 :—

Case I.—Prisoner Bishan Rai, aged twenty-two, employed as a cook in the jail kitchen, slept in barrack No. 10. He came to hospital on 24th January, 1894, with a temperature of 103° F., complaining of very severe pain in head and neck; pulse very rapid; eyes congested; spleen not enlarged; no evidence of malarial infection. Soon after admission he vomited several times and rapidly passed into a state of unconsciousness, in which he remained with intervals of partial consciousness, during which he cried aloud on account of the pain, till he died on the fifth day. On *post-mortem* examination the surface of the brain was found covered with purulent lymph, which extended also over the upper spinal cord; lungs healthy; other organs normal. There was no rash[b] or petechiæ in this case, only herpes on the lips.

Case II.—Prisoner Beni Dosadh, aged thirty, from barrack No. 11. Had been at work outside the jail on a lime kiln in jail grounds. On 28th February, 1898, he was brought to hospital complaining of great pain in head and neck. Temperature 104° F. Conjunctivæ congested; pupils dilated; pulse very rapid but varied in rapidity; respirations hurried and shallow; tongue coated; headache intense; delirium alternated with deep unconsciousness. On third day painful swellings of knee-joints and left wrist appeared. Grew gradually worse; coma deepening; died on March 3rd.

Post-mortem Examination.—Body well nourished; purulent lymph all over surface of brain and upper portion of cord; lungs anæmic, except slight hypostatic congestion posteriorly; other organs normal; no enlargement of spleen.

Case III.—Prisoner No. 867, Udit Rai, aged fifty-six years, from barrack No. 6; last at work on "light labour" cleaning pulse. Was admitted to hospital on 17th April, 1898, with fever; 102° F. Pulse rapid; breathing stertorous; pupils dilated; coma; clonic spasms of arms and legs; died same day at 3 p.m. with a temperature only 96° F. The autopsy revealed a fine layer of lymph over the whole surface of the brain; lungs congested, not hepatised; old pleural adhesions on right side; heart dilated, full of thin, tarry, fluid blood; spleen normal; other organs healthy; bladder full of urine.

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[a] *Vide* Journal of Tropical Medicine, No. 1, August, 1898; also B. M. J., Sept. 24, 1898; Lancet, August 6, 1898.

[b] This is usual in dark-skinned Indian cases.

CASE IV.—Prisoner Ghasi Mahato, aged thirty-seven, worked in jail grounds on brickmaking. Admitted to hospital on 17th April, 1898—there were three cases on this day. Complained of intense pain in head and neck. Temperature 102°. Conjunctivæ congested; no strabismus; pupils dilated; tongue furred; pulse very rapid; bowels constipated; in a few hours became rapidly unconscious, sometimes rolling restlessly from side to side uttering groans. Came to hospital during the night and died at 9 a.m.

Post-mortem.—After seven hours. Brain much congested; copious exudation of lymph over surface and in the sulci; some turbid fluid in the ventricles; lymph spread down the spinal cord; lungs both anæmic, otherwise normal; liver congested; small fibrous tumour on bile duct, not occluding it; stomach contained large quantity of rice and dâl (pulse) (last night's meal); other organs normal.

Many other such cases might be here quoted, but the above will suffice. All types of the disease are met with in India—fulminant, acute, and chronic. The onset of the disease is usually very sudden; I have never met with any prodromal symptoms, all the cases I have seen have been at work till the moment of the attack, or at least to the night before. The usual symptoms are fever and headache, but these are too common symptoms of ordinary malarial fevers to attract special attention in India. It is usually the blood-shot eyes, the pain or retraction of the neck, or the rapid supervention of coma, which call attention in India to the severe nature of the disease. The temperature is very irregular, and bears no relation to the severity of the disease. It is continuous, remittent, or intermittent in type, or in cases which last for some time, all three types of pyrexia may be seen on the temperature chart. Sometimes a rise of temperature is accompanied by exacerbation of the pain, and deepening of the coma; in other cases, or even at other times, very severe cerebral symptoms may be present with a normal, or even subnormal, temperature. In one case, published in my

B. M. A. article, there was a very distinct intermission of fever and all symptoms from the sixth to the ninth day. This is the most decided case of a genuine relapse which I have seen published (*v.*. Chart, *loc. cit.*).

The temperature often intermits in the early morning, but such does not always bring with it any improvement in the other symptoms. In some cases there is a distinct rise in temperature before death, in others death may occur when the temperature is normal and even subnormal. In one case which occurred here this year the temperature fell in 2½ hours from 105° to 96° F., the patient dying in just six hours from the onset of the attack. But if the temperature in this disease is erratic, the pulse is not less so. It appears to bear no definite relation to the temperature, or to the cerebral symptoms. Severe cases with intense pain may be met with with a slow pulse, at other times in the same case the pulse is very rapid. In one day I have met with a pulse of 124, and in an hour after it had fallen to 70. Pulses from 80 to 112 at various hours are not uncommon.[a]

The respirations are usually hurried, but not excessively so. In one case, with very rapid breathing—50 per minute for several hours—I fully expected to find commencing pneumonia, but on *post-mortem* examination the lungs were anæmic, and there was not even congestion. The spleen may be enlarged, it is said, but in all the cases I have met the enlarged spleen could be traced to previous malarial attacks. The headache is almost always very severe. The neck symptoms are important and pathognomonic, but may be slight or absent; distinct retraction does not always occur, but pain in the neck and upper part of spine is usual. These symptoms usually are met with early, and much aid the diagnosis. Some degree of mental disturbance is invariable, but the amount varies from hour to hour or day to day. Every degree from stupor and coma to wild restless delirium may be met. Hyperæsthesia is not uncommon. The pupils I have generally found dilated or unequal; strabismus is common. I have nothing certain to say about the knee-jerk or other reflexes, they may be normal or exaggerated. Opisthotonos and all degrees of spinal irritation are met with. Retention of urine is common, but I have not seen albuminuria. The eyes are usually suffused and much injected. The only skin eruption I have met in Indian cases is herpes, which, about the lips, is very common. This symptom, however, is of minor importance in India, as herpes is often found at the end of a bout of malarial fever. Nearly all Indian cases have pains in the joints, in some swelling and tenderness. The nature of the joint affection is unknown, and Dr. Councilman tells me he is specially investigating it. Middle ear complications have been noted, but it must be remembered that in such cases the meningeal symptoms *may* be due to streptococcic infection. The lung complications are very important; pneumonia we know now is a multiple infection, and in cerebro-spinal cases the lung affection may be due to diplococcus, and so part of the disease is due to pneumococcic pneumonia. In one case I reported the pneumonia was focal, central, and surrounded by healthy tissue. Meningitis is also a rare complication of ordinary croupous pneumonia. Pericarditis I have found more common than is usually stated, but pericarditis and pleurisy are very common complications also of croupous pneumonia in Bengal.

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[a] This variation of the pulse has often been noted in cases of plague during the present epidemic.

Fulminant cases are more common in my experience than is reported of the Boston epidemic. Out of 17 recent cases 4 cases died on the day of attack, 10 lasted from 4 to 8 days, and 3 lasted over one month. The degree of mental dulness left after an attack which has been recovered from is somewhat difficult to determine in cases among uneducated native prisoners. Mental dulness was well marked in one case I know, but in several others seen after several months I am bound to say I could detect nothing abnormal. I recently saw a case which on first day I was inclined to consider cerebro-spinal, but he rapidly recovered. It may possibly have been one of the cases called by Strümpell "abortive."

ÆTIOLOGY.

Age.—All ages seem liable to attack; most writers mention youth as the most susceptible age. In the 17 recent cases in Bhagalpur jail there was only one youth (aged 16), seven were over 45 years, and the rest from 20 to 40 years, but of course we have only comparatively few juveniles in prison—40 say out of 1,700.

The time of year is generally said to be winter, but cases are met with in India all the year round. The 17 Bhagalpur cases occurred as follows:—January, 1897, 1; February, 1; March, 2; April, 3; October, 1; December, 1; January, 1898, 2; February, 2; April, 4—*i.e.*, 9 in the "hot weather" against 8 in the "cold" season.

Overcrowding is a factor commonly invoked, but it cannot be shown that the disease occurs either in or on account of overcrowding. Most of the recent Bhagalpur cases came from barracks—Nos. 10, 11, 15, 16, 6 and 7—all large, newly-built, well-ventilated buildings, with a floor space per prisoner of 44 sq. ft., 640 c. ft. air space and 16 sq. feet of ventilation area per man; in fact, during the hot weather the prisoners practically slept under cover in the open air.

Previous health seems to have little or no influence, nor have sanitary surroundings. They could not have been better than they are in the Bhagalpur jail. Food grains have been suspected. In one case the maize was found weevil-eaten; its issue was stopped, but the cases came in just as before. Cases are met with whether the food is rice, wheat, or maize.

The water supply has never been suspected in the production of this disease.

It is now practically agreed, since the publication of Dr. Councilman's monograph, that the *Diplococcus intracellularis* of Weichselbaum is the cause of the disease, and this being so it must in some way be communicable; but the history of outbreaks seldom point to any definite evidence linking one case with another. Unless, however, we imagine successive importations of the offending germ we must admit that the poison of the disease can hang about a building or set of buildings for many years. The usual history is that of one or two cases at intervals of one or more months, though I know of three or four cases occurring in one day. The germ must therefore be able to lie dormant in some way for lengthy periods. The Alipur jail at Calcutta produced cases—a few each year—for ten successive years. In India we have always treated the disease as contagious, in the absence of any definite evidence either way. If we judged by the interval between cases in the same institution the incubation period must be one or more months. Not impossible, as we know in the case of hydrophobia, another cerebral affection. The diplococcus having been found in the nose, the nasal secretion has been suspected. It is difficult to conceive any other method of spread for an organism shut up in the brain and spinal "cavities." No particular form of prison labour came under suspicion—cooks, workers in the brick-field, in the woollen factory, on the lime-kiln, men doing "light labour" (cleaning rice or pulse), cloth-weavers, &c., all such workers furnished their proportionate quota of cases, nor did any particular barrack or workshop produce any majority of cases. We must conclude, therefore, that little is yet known as to the ætiology of this affection.

Diagnosis.—This is usually not difficult; isolated cases may, however, be due to other infections than the diplococcus of Weichselbaum—as, for example, in cases of pneumonia, or after influenza, or in septic ear disease, or due to the tuberculosis bacillus. Such cases are *not* "cerebro-spinal fever." In India cases occurring in the hot weather must be distinguished from heat-apoplexy, sunstroke, &c., and other affections due to exposure (*pace* Dr. L. Sambron) to prolonged high temperature, or to solar heat. In malarial countries the intermittent, or more often the remittent, type of the pyrexia may lead one to think only of malaria, and it is known that cases have been returned under that confusing and all-embracing term, "remittent fever." I have even heard it maintained that this disease is only typhus fever. Pernicious malarial attacks of the comatose form could be distinguished during life only by an examination of the blood, or by the effect of quinine.

Prognosis is bad; about 50 *per cent.* of cases die. *Treatment* is not satisfactory, and is mainly symptomatic.

Lumbar puncture, in addition to being of great aid in the microscopic diagnosis of the disease is said also to be beneficial, but the effect is, at the most, very temporary. Perchloride of mercury has been used in America with some success, but until we know more of the ætiology of the disease our treatment must be merely for the relief of symptoms.

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"Councilman's Report" contains a very complete bibliography of the disease from the earliest times.

ART. VII.—*A Case of Chyluria.*[a] By HENRY T. BEWLEY, M.D., F.R.C.P.I.; Physician to the Adelaide Hospital.

THE occurrence of fat in urine, except in microscopic quantities, belongs to the rarities of medicine. It sometimes does occur in drops or layers visible to the naked eye. This may be due to two classes of causes—(1.) There may be an excessive quantity of fat in the blood, which excess the kidneys attempt to remove by excreting some of the fat into the uriniferous tubes. The fat then appears in the urine. This excess of fat in the urine or hæmatogenous lipuria may occur after fractures of bones in connection with fat embolism. In diabetes, disease of the pancreas, and other morbid conditions, and after the ingestion of large quantities of fat, such as cod-liver oil, the same phenomenon is said sometimes to occur. (2.) There may be some local lesion in the urinary tract which causes fat to appear in the urine. When in microscopic amount this condition is common; we are all familiar with the fat droplets in tube casts in Bright's disease. In cases of fatty degenerations in connection with the urinary tract, whether of tumours or of inflammatory masses, fat has occasionally found its way into the urine in such large quantities as to form drops visible to the naked eye. (3.) In another class of cases there may be both an excessive quantity of fat in the blood, and also fatty degeneration in the urinary organs. This may occur in phosphorus poisoning.

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[a] Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, December 16, 1898.

The case which I am about to describe does not belong to any of these groups. In it the fat did not exist in visible drops, but rather in an emulsion of extreme fineness, and so it belongs to the condition known as chyluria.

Chyluria, then, is that condition in which the urine contains fat in the form of a very fine emulsion. Albumin is also present, and often fibrin, the latter causing the urine to form a jelly, sometimes while still in the bladder, and often after having been passed. This condition of urine, when it occurs, often lasts for very long periods—many years—without seeming to do the patient much harm, unless it be that clotting occur in the bladder, in which case the passage of the clots causes great pain.

The pathology of the disease is in many points doubtful. (1.) A view put forward by C. Bernard and Robin was that there was in these cases an excess of fat in the blood—a lipæmia—and that this excess is excreted by the kidneys. This theory appears untenable. Apart from the fact that such a lipæmia is merely hypothetical, we may observe that when fat is in excess in the blood, and is excreted by the kidneys, as in fat embolism, it appears in the form of drops, and not in a fine emulsion. (2.) Sir W. Roberts records, in his book on Urinary Diseases, an interesting case in which a vesicular eruption formed on the abdomen, and from the vesicles a chylous fluid exuded. For two days chyluria existed. He suggests that a lesion of the mucous membrane of the bladder, similar in nature to that of the skin of the abdomen, and accompanied by a similar oozing of chylous fluid, would fully account for the phenomena of chyluria. This is undoubtedly the case, but it is doubtful whether such a theory can be relied on in any but a very few cases. Not only has such a lesion of the mucous membrane of the bladder never been observed (in Sir W. Roberts' case after death the bladder was found healthy), but the symptoms of ordinary cases of chyluria do not in the least point to any disease of the bladder. (3.) The third view, put forward originally by Vandyke Carter, is that chyluria is due to some abnormal communication between the abdominal lymphatics and the urinary passages. It is believed that the lymphatics for some reason become obstructed, and that behind the obstruction stasis occurs, and they become dilated and varicose, and that the varicose lymphatics may rupture or weep into the urinary passages. This view is generally accepted. The urine passed is, in fact, exactly what would be formed by a mixture of chyle and urine. In a very interesting case, described and figured by Dr. Stephen Mackenzie, at the *post-mortem* examination the lymphatics at the back of the abdomen were found greatly enlarged, especially those in connection with the left kidney. He thinks the leakage of chyle took place into the urinary tract about the kidneys. In other cases it seems that the leakage was into the bladder. In a case of chyluria in a woman Havilburg obtained healthy urine by catheterising the ureters.

Chyluria is very seldom found except in those who are living or have lived in the tropics—Brazil, India, &c. In these cases the blood always, or almost always, contains some of the varieties of the *Filaria sanguinis hominis.* These parasites in some stage of their life-history probably cause the obstruction in the lymphatics, and so the chyluria.

A few cases, however, have been described in which no filariæ have been found in the blood, and a few are on record in persons who have never been in the tropics. We are quite in the dark as to the cause of the obstruction to the lymphatics in these cases. We are, however, I think, justified in assuming that some obstruction to the flow of chyle and lymph actually exists in the abdomen.

As the disease is a rare one I have prefixed to my notes of the case these remarks on the present state of our knowledge concerning it. The following is the history of the case that came under my care:—

Case.—Mrs. D.'s father died of sunstroke in India; her mother is alive. There were no brothers or sisters. She herself was born in Mauritius in 1857, but came to England in 1858, and lived at home till 1869. She then lived for two years at Mauritius and one year at St. Helena. She came back to England again in 1872, and soon after, when seventeen years old, married. After her mariage in 1873 she went with her husband to Hong Kong, and lived there three years, coming home, after his death, in 1877. She has lived in Ireland ever since, being engaged as a nurse since 1882.

She had the ordinary children's ailments, but was never seriously ill till, in Hong Kong, she had malarial fever and inflammation of the kidneys. The ague returned occasionally for four months. From that time she was perfectly well till her present illness commenced.

For the past six years she has been head nurse in a workhouse infirmary in Ireland.

In April, 1897, she began to suffer from pain in the lumbar region of the back, "as if she was being chopped in two," for some minutes before she passed water; just before passing it a feeling of pressure and pain was felt about the bladder, and she felt a stabbing or cutting sensation while in the act of passing water. At the same time she noticed her urine milky in appearance. She consulted Dr. Smyly, who advised her to go into hospital, which, however, she was unable to do. Soon afterwards she began to pass clots, which caused intense pain. She told me how a pain would come on in her bladder, and she would go and try to pass water, but she felt as if "there was a wall before her," or as if "there was a barrier in the way." Then, after severe forcing, violent pain would come on, like the passage of a child's head, so bad that she had to scream out, and the bladder would empty itself. When she looked into the vessel she would see a round mass the size of a child's head, milky in colour, or at times streaked with blood. The severe pain in the urethra would persist some time. Usually, however, the urine did not form such large clots in the bladder, and the extreme pain in passing water did not occur oftener than once in a week or two.

This condition lasted till the beginning of April, 1898, when her left leg became swollen, and pitted on pressure. She went into the Rotunda Hospital, when, after a few days' rest in bed, the swelling of the leg disappeared. Nothing calling for gynæcological treatment being discovered, after three weeks she was transferred to the Adelaide Hospital on May 7th.

I found her a healthy-looking woman, forty-one years of age. She had lost about two stone in weight during the last few years, but otherwise appeared perfectly healthy, except for the condition of the urine. The amount of urine passed was normal; it was acid, and its sp. gr. was 1020–1028. It was sometimes as white as milk when passed, and, on standing, a dense layer of cream rose to the top; sometimes it was merely turbid. There was no periodicity in these variations; sometimes it was clear at night and turbid by day, sometimes the opposite. I could not ascertain that food or fasting, exercise or rest, or change of posture produced any effect upon it. It always contained albumin, but the amount seemed to vary directly with the milkiness, the very milky urine being densely albuminous. Sometimes it was quite fluid, at other times it contained larger or smaller clots. These were like soft blancmange or opalescent jelly, but differed in one respect from the clots formed by gelatinous substances. The latter clots are homogeneous; the clots in the urine evidently consisted of a watery fluid held in the meshes of a fibrinous net-work. This difference I noticed from the following observation:—If you let a little thin jelly drop on the floor it will very probably break into pieces, but the pieces will still be gelatinous. If the urinary clot fell on the floor, as it often did when I was trying to get some of it into a bottle, it seemed at once to turn into thin fluid, and the clot disappeared. I suppose the fall shook the fluid out of the fibrinous meshes. Sometimes the clots were pinkish, but usually not.

The urine contained a normal amount of urea; it never contained sugar. Under the microscope nothing whatever could be seen except an emulsion of extreme fineness—so small, indeed, were the fat droplets that under a $\frac{1}{12}''$ oil immersion lens they only appeared as almost invisible specks. There were no cells or tube casts.

We examined her blood at all hours, day and night, for filariæ, but found none. We also in vain examined the clots in the urine.

Under treatment by rest in bed, ordinary food, and a mixture containing perchloride of iron and strychnine, she improved—the urine became less milky, clots ceased to form in the bladder, and on May 24th, after nearly three weeks' stay in hospital, she returned to her nursing duties.

The urine remained quite clear for a month after that. Since

then it is occasionally milky, but she has not passed any clots or had any pain, and she feels very well. She has increased in weight. She is still taking the iron and strychnine, as when she leaves it off she says she suffers from a weary, dragged feeling in her body.

Was this a case of filarial chyluria or not? In favour of the filarial nature of the disease is the fact that she lived both in Mauritius and Hong Kong, places where filariæ abound. The long period of perfect health after leaving Hong Kong and coming home—viz., twenty years—does not disprove this idea. Filariæ rarely do any harm in the body; in some places in the tropics many—in Samoa even 50 per cent.—of the inhabitants harbour them without suffering the slightest inconvenience, and it is only, so to speak, when some accident occurs to the worms that symptoms develop. It is quite possible that my patient may have been infected in Hong Kong, and may have contained the worms for twenty years (Osler mentions a case of chyluria which lasted eighteen years), the parent worms all the time inhabiting the receptaculum chyli, or some of the adjacent lymphatics. Then their death may have caused both disappearance of the embryo filariæ from the blood, and also, by causing inflammation, may have blocked the lymphatics, and so caused their tributaries to become varicose and rupture. "After obstruction of the thoracic duct has been set up by the parent filariæ," writes Manson,[*] "it is of no consequence, so far as the production of an inverted flow of chyle and lymph is concerned, whether the filariæ live or die. A stricture of this description once produced is permanent, and continues after the cause which had given rise to it has long passed away. Hence the occasional absence in chyluria of the embryo filariæ in the blood. In such cases the parent filariæ, after having damaged the thoracic duct, had died." It may, on the other hand, have been that the lymphatic obstruction was brought about by some inflammation or other cause wholly unconnected with the tropics or with filariæ. On this point I cannot form any definite opinion, as I do not think the facts are sufficiently known to elucidate the case.

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[*] System of Medicine. Edited by Clifford Allbutt. Vol. II. P. 480.

ART. VIII.—*Public Health and Preventable Disease in the Counties of Cork, Kerry, and Waterford.* By PATRICK LETTERS, M.D., D.P.H.; Fellow of the Royal Academy of Medicine in Ireland; Fellow of the Royal Institute of Public Health; Fellow and Member of Council of the British Balneological and Climatological Society.

(*Continued from page 39.*)

LET us now pursue our inquiries into measles mortality a step further, in order to get at its local distribution throughout the Counties of Cork and Kerry. Taking Cork first, it is found from the four quarterly returns of the Irish Registrar-General for 1897 that measles deaths were distributed throughout the poor-law unions of the county as follow:—Cork 81, Skibbereen 15, Skull 14, Clonakilty 11, Bandon 7, Dunmanway 7, Bantry 6, Fermoy 5, Castletown 3, Kinsale 3, Macroom 1, Kanturk 1. The parts of Co. Cork, therefore, which were free from measles mortality were the unions of Mallow, Middleton, and Millstreet, along with those portions of Kilmallock, Mitchelstown, and Youghal which are included within the county. This gives a rough idea of the distribution of measles, but, in order to show that it does not—even approximately—represent the rate of mortality in the several unions, we have only to examine, side by side, a few localities showing a marked incidence of the disease. The three contiguous unions of Skull, Skibbereen, and Clonakilty collectively recorded 40 deaths from measles. Allowing these unions the advantage of the populations existing at the last Census, the measles mortality-rate for their combined area stands at 0·65 per 1,000, a rate almost three times as heavy as that of the country at large. If separate calculations be made for each union it will come out that the measles death-rate in Skull was 1·25, in Skibbereen 0·53, and in Clonakilty 0·50 per 1,000 of their respective populations. Skull, judged by the number of its measles deaths, appears a shade better than Skibbereen and not much worse than Clonakilty: subjected to an accurate method of estimating mortalities, it stands almost two and a half times as bad as either. On examining the measles deaths in the union of Cork the extremely interesting fact comes out that 80 out of the 81 occurred within the nine urban dispensary districts which comprise the city. The remaining death occurred in Carrigaline No. 1 district. The measles death-rate in Cork city, calculated on the population of 1891, comes out at 0·89 per 1,000, a rate greatly in excess of any union rate in the county, Skull alone excepted. While each of the nine urban districts contributed to the mortality, the chief incidence of the disease was in the early months of the year, the first quarter yielding 47 deaths, the second 26, the third 4, and the fourth 3. Having regard to the large daily traffic between the city and the suburban districts of the union, it is a remarkable, and, I think—from the public health standpoint—a noteworthy circumstance that Ballincollig, Ballygarvan, Blarney, Carrigaline No. 2, Douglas, Dripsey, Whitechurch, and both the districts of Queenstown should all show clean bills of health for measles. That all these districts, in the first half of the year, ran daily risk of invasion by measles is beyond a doubt. The question is, what saved them? Measles travels by every mode of conveyance—by road, rail, and steamboat—and usually in the persons of passengers apparently well but incubating the disease. Unless these suburban districts of Cork union enjoyed immunity from measles by reason of a recent epidemic, it is not easy to account for their complete escape in 1897, if not saved by the vigilance and capacity of their medical officers, and the prompt employment of preventive measures special for this disease. If this view be correct, it is a strong reason against a proposal that has been made—as unwise as it would be impracticable and unjust—to dispense altogether with the sanitary services of these officers under a reformed administration of the public health. In the county of Kerry the distribution of measles was marked by some points of extreme interest. Its measles death-rate was 0·127 per 1,000 of the estimated population—a rate, be it observed, only one-third that of Co. Cork and just a shade over one-half that of Ireland. The Annual Report of the Registrar-General and his four Quarterly Returns do not quite coincide in the figures given in each county for these preventable diseases. The differences are not very material, and arise probably from superintendent registrar's districts running into more than one county or from registrar's districts and poor-law unions not being always identical areas. The quarterly returns give the better idea of the local distribution of the diseases. From these it appears that measles deaths were distributed in Kerry unions as follow:—Cahirciveen 22, Listowel 2, Kenmare 1, Dingle 1, Killarney 1, Tralee 0. We have here a very marked concentration of measles in one union, but on closer examination we shall find that measles was by no means generally diffused throughout the union of Cahirciveen. In the five dispensary districts which comprise it, measles deaths were distributed as follow:—Valentia 14, Caher 4, Emlagh 4, Derrynane 0, Glanbehy 0. More than one-half the deaths from measles in Kerry were thus confined to the dispensary district of Valentia—that is, to an area of 10,451 acres with a population in 1891 of 2,958 only. Death-rates calculated on the Census figures will show Valentia to slightly better advantage than the reality, its population, in common with that of the country at large, having decreased. Fourteen deaths in a population of 2,958 is equivalent to a rate of 4·73 per 1,000. What does this mean comparatively with the measles death-rates elsewhere recorded? It means—as plainly as figures can speak—that people in Valentia died from measles at twenty times the rate they did throughout Ireland and at more than five times the rate in Cork city. It further means that measles in Valentia was sixty-two times more destructive of life than it was throughout the entire remainder of the County of Kerry! While it is always better to avoid drawing inferences from statistical comparisons where perfect parallelism is wanting, it is not in the least heteroclitic to illustrate, by a numerical fact, the potentialities for evil of measles in any given locality under an exceptional set of circumstances. The numerical fact alone, 4·73 per 1,000, would be a statistical impossibility for measles under any ordinary conditions, but the Valentia outbreak was a concatenation of abnormalities. The district is a remote rural one, the population was unprotected, and the epidemic was a school-bred and school-fed one, briskly burning itself out in a few months.

Before dismissing measles a practical question is—Can we do anything by hygienic means to lessen its serious mortality?

In rural districts we decidedly can. How many rural practitioners can recall instances of measles-prevention in the ordinary course of Practice, where full confidence existed that the disease was under perfect control! The only point on which there is any divergence of opinion as to the proper hygienic measures to employ is the question of "notification." Although this has been tried and abandoned in a number of English urban districts as unproductive of result, it would, I think, be absolutely necessary and also yield good results in the Irish counties when the chaotic means by which the public health is presently protected gives way to a systematised administration.

To such of my readers as do not share my views on the prevention of measles I would say:—Take up a map of the Counties of Cork and Kerry showing the poor-law unions, and give the distribution of measles a little study. See how the suburban districts of Cork escaped. Observe the marked freedom of the whole strip of country to the east, north, and north-west of Cork, from Youghal to Dingle, comprising ten unions, in which only 8 deaths from measles occurred; and mark, further, that 5 of these were in the dispensary district of Fermoy, a district which has constant intercommunication with Cork. Look westwards to the large area covered by the unions of Macroom and Kenmare, in which two deaths only occurred from measles. Now, turn to those unions lying along the Cork and Bandon line of railway and see the heavy measles mortality in this whole tract of country. In the seven unions of Kinsale, Bandon, Dunmanway, Bantry, Skull, Skibbereen, and Clonakilty, 63 deaths occurred from measles. It is impossible to escape the conclusion that these localities fed each other with the infective material of this troublesome, yet not unmanageable, disease.

Scarlet Fever.—Proportionately to the country at large South Munster suffered little from this disease in 1897. In all Ireland 522 deaths were registered, in South Munster 38 only, or a trifle over 7 per cent. of the total scarlet fever mortality of the country. In 1896 scarlet fever caused 752 deaths throughout Ireland, and for the ten years 1887-1896 an average of 572 deaths annually. Of the 38 deaths in South Munster 21 occurred in Cork, 9 in Kerry, and 8 in Waterford. The rate of scarlet fever mortality is brought out in the following table, from which the populations are omitted as unnecessary of repetition:—

SCARLET FEVER MORTALITY TABLE.

—	Deaths Registered	Death-rates per 1,000 of the Population
Cork - - - -	21	0·050
Kerry - - - -	9	0·052
Waterford - - -	8	0·084
South Munster - -	38	0·055
Ireland - - -	522	0·115

In our death-rates from scarlet fever considerable differences will be found on examining purely rural districts alongside of urban centres, and the general low rate in Ireland is due to the great preponderance of the rural over the urban population. Where the relative proportions of these are reversed, as in England, a higher rate of mortality from scarlet fever results. The death-rate from this disease in England for 1895—the latest official return at my hand—was 0·149 per 1,000 of the population; but, in order to show what sanitation has done and can do for this disease, it is enough to mention that, twenty years previously, the English death-rate was 0·691. Comparing the scarlet fever death-rate of the combined rural sanitary districts in Ireland with that in the combined urban districts, the former shows 0·073 and the latter 0·201 per 1,000 of their respective populations, or, roughly, scarlet fever is three times more destructive of life in the cities and towns of Ireland than in the country districts. During the ten years 1881-1890 the average death-rate in England from scarlet fever was 0·34 per 1,000 living—that is, three times the general rate in Ireland, and almost five times our rural rate. Looking to the distribution of scarlet fever in Co. Cork, the returns show the mortality to have been mainly centred in the two unions of Fermoy and Skibbereen. In Kerry the foci were Listowel and Tralee. In Waterford there was no concentration of mortality, but the unions of Clonmel, Lismore, and Dungarvan, with Waterford City, contributed their quota. It is worthy of remark that one death only from scarlet fever occurred in the City of Cork in 1897. Six occurred in the dispensary district of Fermoy, raising its scarlet-fever death-rate to 0·65 per 1,000 of its population, a rate thirteen times heavier than that of Co. Cork as a whole. In the union of Skibbereen the scarlet-fever death-rate works out to 0·25, which is four and a half times heavier than that of all South Munster. The Listowel rate was 0·20, or four times that of Kerry. As the deaths in Waterford City were confined to No. 2 dispensary district, the scarlet-fever death-rate in that division of the city comes out at 0·17, a rate very little short of the general urban rate for Ireland, yet two and a half times heavier than that for the whole County of Waterford. Comparing measles and scarlet-fever death-rates as found in South Munster in 1897, it is clear that the former disease is by far the more serious from the public health point of view. Throughout the County of Cork alone, measles was more than seven and a half times as destructive of life as scarlet-fever was!

Typhus Fever.—In point of interest for the Irish sanitarian what is there to surpass typhus? Somewhat less baleful, it is true, than a few years ago, yet how persistently it clings to Ireland, and in Ireland how ubiquitous! Owing to the complete triumph of sanitary science over this pernicious disease in England, its interest there is now almost entirely retrospective.

Proportionately to our population, there was a greater sacrifice of life to typhus fever last year than there was in England eighteen years ago, the Irish death-rate in 1897 having been 0·026, while the English in 1879 was 0·021, per 1,000 of their respective populations. Although a gradual reduction in the mortality from typhus is taking place in Ireland, the rate of decrease is entirely too slow, having regard to the fact that the disease is one than which there is no other more amenable to sanitation, when vigorously applied.

In our contest with typhus fever it is warrantable to say that we are a quarter of a century behind Great Britain. The admission discloses a blot on our national sanitation, removable only by a large reduction of typhus mortality. In 1897 typhus fever caused the deaths of 121 persons in Ireland. In 1895, throughout all England, 58 persons only perished from this disease, equal to a rate of 0·002 per 1,000 of the English population. In other words, our national rate of mortality from typhus is still thirteen times heavier than that of England. In 1896 there died from typhus fever in Ireland 129 persons. Let me now introduce a tabular statement of typhus death-rates:—

TYPHUS FEVER MORTALITY TABLE.

—	Deaths	Death-rates
Co. Cork - - -	14	0·083
Co. Kerry - - -	10	0·058
Co. Waterford - - -	7	0·074
South Munster - -	31	0·015
Cork City - - -	5	0·056
Ireland - - -	121	0·026
England (1895) - -	58	0·002

The feature in this table which will strike South of Ireland readers at once is that they have very much more of typhus amongst them than their due proportion. Throughout the whole area of South Munster people died from typhus fever last year at almost double the rate they did throughout the remainder of Ireland. In Waterford County the rate was somewhat startling; for there typhus operated with a destructive force thirty-seven times greater than the same disease throughout the length and breadth of England, and with thrice the virulence throughout the rest of Ireland.

The Kerry rate, although 22 per cent. under that of Waterford, was still a very serious county rate in Ireland for typhus fever. The local distribution of a disease over which sanitary science elsewhere has secured its most signal victory is of absorbing hygienic interest, and well worthy of the closest study. As before, we shall begin with Cork—In this county the typhus deaths were distributed as follows:—Cork City 5, Carrignavar (No. 2 district) 1, Clonakilty 5, Skibbereen 3, Dunmanway, 1. In Kerry the disease was practically centred in Dingle, where 8 deaths occurred. In Waterford, Dungarvan gave 5 typhus deaths. It should be kept in mind that a mere tabulation of deaths from typhus expresses but a tithe of the miseries attending this disease, wherever it prevails. The deaths are a record only of those stricken never to rise: they give no estimate of the sickness recovered from, nor of the domestic privations which follow in the train of this formidable disease. Let me now give a tabular view of typhus death-rates in the Dingle Union, and in the dispensary districts of Clonakilty and Dungarvan, to demonstrate what this disease is capable of, when planted amongst small isolated communities:—

—	Population	Typhus Deaths	Typhus Death-rates
Clonakilty Dispensary District -	8,032	4	0·498
Dingle Union - - -	19,021	8	0·421
Dungarvan Dispensary District -	8,216	5	0·609

Were any of these typhus death-rates to occur in an English community—urban or rural—a public panic would be created and people would fly from the pestilential spot. The rate in Dungarvan was eight times heavier than that of Co. Waterford, twenty three times that of the general typhus death-rate in Ireland, and more than three hundred times the rate in England!

Who will question the desirability of an earnest assault on typhus fever in Ireland? It stands recorded that the death-rate from this disease in England, so late as 1869, was 0·193 per 1,000 living, and that it had fallen in 1895 to 0·002. In other words, within a quarter of a century typhus mortality had dwindled to one-ninety-sixth part of its former intensity!

(*To be continued.*)

NINTH INTERNATIONAL CONGRESS OF OPHTHALMOLOGY.

The Ninth International Congress of Ophthalmology will be held at Utrecht from Monday, the 14th, to Friday, the 18th of August, 1899. The official languages of the Congress, both for papers and for the discussions, will be English, French, and German only. The business of the Congress will be carried on in general meetings and in three sections, namely—(1.) Anatomy, Pathological Anatomy, and Bacteriology. (2.) Optics and Physiology. (3.) Clinical Methods and Operations. The subscription for membership of the Congress is 25 francs; this will include a copy of the Transactions. The Congress will be held in the University of Utrecht. The Organising Committee consists of Dr. Argyll Robertson, President of the Eighth Congress; Dr. George A. Berry, Secretary-General of the Eighth Congress; M. E. Mulder, Professor in the University of Groningen; M. Straub, Professor in the University of Amsterdam; W. Koster, Professor in the University of Leyden; and H. Snellen, Professor in the University of Utrecht.

BULLET-WOUNDS IN THE SPANISH WAR.

Speaking generally, it is safe to say that the Manser bullet does not mutilate. We had read of the mutilations made by it on the cadaver at various ranges, but, as a matter of fact, the point of exit is surprisingly small, in some cases amounting to nothing more than a scratch. Nor are the bones splintered to the extent that the text-books state. The bullets seem to be surprisingly easily deflected. We could give many instances of this. In one case the bullet entered the right leg in the upper third of the thigh, passed upward through the abdomen in front of the bladder, and finally came out of the left leg externally at a point exactly corresponding to that of its entrance, leaving only a very small mark. On the other hand, the Lee-Metford bullet used by the marines makes a frightful wound at the point of exit, and when it strikes a bone it literally drives it before it, at the same time splintering it to bits.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Tablets of Anatomy, Dissectional and Scientific. By THOMAS COOKE, F.R.C.S. Eng., B.A., B.Sc., M.D. Paris, and F. G. HAMILTON COOKE. 3 Parts. London: Longmans, Green & Co. 1898.

NEVER, we think, have we, in a treatise on a scientific subject, come across such a peculiar mixture as the work in three volumes now lying before us is. Even the author thinks it necessary to give some explanation of its conglomerate character. He tells us in the preface that "there are two books here—a treatise and a thesis," an anatomical treatise and an "educational thesis." The anatomical treatise is further made up, we are told, of practical or "dissectional" anatomy, on the one hand, and of the "advanced," "scientific," or "transcendental" anatomy recently introduced," on the other. So we have (*a*) an educational thesis, (*b*) a treatise on "dissectional anatomy," and (*c*) a treatise on scientific or "transcendental" anatomy. But it must not be thought that one of the three volumes is devoted to each of these subjects; nor yet that the three are carefully and evenly blended into one harmonious whole. On the contrary. The dissectional anatomy is given in the form of tablets, printed on a cream-coloured paper—the well-known Cooke's tablets of former years, little, or not at all, changed. The transcendental anatomy is printed on white paper, and is inserted in various (sometimes unlikely) places throughout the volumes; while the educational thesis, in addition to forming a considerable portion of the preface, is used to fill up holes and corners everywhere. If the description of any organ does not occupy exactly the space allotted to it, a slice of the educational thesis makes up the deficiency. If there are a few pages to spare here or a few lines there—the thesis again. A very promising description of an organ (in the transcendental sections) develops gradually into a tail, composed entirely of educational thesis. And so skilfully at times is the thesis introduced, that the whole arrangement recalls those cunningly-devised notices which we are sometimes trapped into reading in the newspapers, which begin with an interesting and exciting tale of adventure, but wind up with a reference to X's pills or Z's cocoa.

For instance, in an article "On the Art of Dissecting," which follows the preface in the second volume, we read—"Two favourite pupils from Cambridge had been working throughout the summer of 1895 in the author's dissecting room, and they had dissected the whole body, as generally understood. There remained a month before return to the university was imperative. The thought occurred, Could not these deserving young fellows be at least shown the less recondite of the structures just referred to? (These were 'those deeper dissections of the cranial nerves and their ganglia, which few men now venture to undertake.') Work was begun in earnest. Methods of dissecting were thought out—the correct dissection methods, it is submitted. Within a week the two young Cambridge workers had seen, and, within a fortnight more, one of them had himself dissected, quite alone, the otic and Meckel's ganglia and their communications (including the petrosal nerves), and the chorda tympani *within* the petrous bone."

Just picture that brave and deserving young Cambridge fellow struggling bravely onwards through the feverish summer heat, when his comrades were away in shady rural lanes, or on the river, or, worse still, wasting their time at Cambridge. Manfully he fights on, scalpel in hand; nothing can turn him aside from his grim resolve. At last, after his fortnight's struggle, success crowns his efforts. He seizes the prize with his forceps, otic—Meckel's—petrosals—all are his—and, "quite alone" he did it!

This is really too exciting for an anatomical treatise. It smacks rather of Nansen's "Farthest North," or of *The Wide World Magazine.* How thankful ought young people—and particularly young Cambridge people—to be, that there is somewhere in this world a happy hunting ground where Meckel's and the otic ganglia may not only be seen, but actually run to earth, with their connections—and alone too! How nice for deserving young Cambridge fellows to have such a retreat to fall back upon!

The educational thesis is devoted in general to a diatribe on the excellencies and utility of dissectional or "knife-and-forceps" anatomy (the only real anatomy, of which there are now, alas, so very few exponents left!), and the defects and uselessness—to the average medical man—of the "up-to-date" or scientific anatomy (as now taught by so many wrong-headed but well-intentioned modern anatomists). In a word, the only real anatomy is that which can be seen by the ordinary dissector and displayed with the aid of his knife and forceps, and a true and faithful account of which is to be found—in "the Tablets." The up-to-date or transcendental anatomy, which the aforesaid wrong-headed, but well-intentioned and deluded, anatomists teach, is not the anatomy of the dissecting room, nor of the student, nor, it is suggested, of nature; it is largely speculative, if not imaginary.

So we turn to the "tablets proper" to discover what the real, true, see-and-touch anatomy is, and we give below some specimens extracted from them; but, before doing so, we should—for those who are unacquainted with the tablets—give an example of the descriptions found therein. We take a muscle:—"*Gluteus minimus.*—Dorsum ilii between middle and inferior curved lines. Anterior border of great trochanter.—S. by superior gluteal nerve."

"*Lingual artery*—Arises a little below hyoid bone, beneath thin anterior margin of sterno-mastoid; upwards and forwards upon middle constructor to great cornu of hyoid bones; horizontally forwards above great cornu beneath hyoglossus, digastric and stylohyoid; upwards on genio-hyoglossus; forwards with gustatory nerve on under surface of lingualis inferior, and then beneath mucous membrane to tip of tongue, under name of ranine."

In the tablets generally the structures are treated after the same brief, pithy, and usually accurate method, without explanations, and, we might say, without descriptions proper.

However, on looking more closely into some of them we notice the following:—(1) Vol. I., page 41—in describing the "anterior surface" of the petrous portion of the temporal bone, we are told that on the outer side of the eminence, corresponding to the superior semi-circular canal, is a depression corresponding to the cavity of the tympanum. If the author goes through at this depression, *outside* the eminence of the semi-circular canal, we fear he will not find himself in the tympanum—Gray notwithstanding. (2) We should like to know in what proportion of cases the nasal nerve comes forward through the notch on the lower border of the nasal bone—"for the nasal nerve" (page 62). (3) We read still in the tablets of the "horizontal ramus" of the pubes (although the author explains that it forms an angle of about 60° with the horizontal). Why, then, in the name of dissectional anatomy, call it "horizontal"?—a name which has done more than anything else to spread the wrong opinions, so largely entertained by medical men, about the position of the pelvis. (4) On page 118 we are told that the depression for *outer* head of gastrocnemius is *above* and *behind* the articular surface of external condyle. (5) At page 126 we read that the posterior surface of the os calcis is rough and broad *below* for insertion of tendo-Achillis and plantaris. A glance at any os calcis will show at once how inaccurate this statement is—the distinct impression for the tendo-Achillis is at the *middle* of the posterior surface, not below.

(6) After reading the many attacks on useless transcendental anatomy, we are rather puzzled to make out a satisfactory reason for the introduction of the long account of the manner and dates of ossifications of the various bones of the body and head, at the end of Vol. I., accompanied by a number of tables and illustrations which are difficult to understand, and even confusing, we believe.

(7) In the tablets the cæcum is still covered by peritoneum on the front and sides only, as a rule, although it is pointed out in "up-to-date notes" that this is not so—as was shown by the transcendental anatomists. But what *they* teach must be unpractical!—so the cæcum must still have its posterior surface free from peritoneum, because Gray and the tablets said so long ago; and, as they are the prophets of the only true anatomy, its back must have no peritoneum upon it, even though Nature insist on clothing it completely.

(8) The prostate has still its base directed *backwards* and

upwards, and possesses an "*upper surface*" looking towards the pubes. (9) The bladder has an anterior surface, and the arch of the aorta still has a "transverse" part—transverse in name only. (10) The rhomboids are supplied by *one of the deep branches of the cervical plexus* and by one of the supra-clavicular branches of the brachial plexus. (The former of these certainly does not exist in our Irish subjects.) (11) The pectineus is supplied by the "obturator or anterior crural"—by the accessory obturator when the latter exists. The knife and forceps will hardly support this statement: the pectineus rarely receives a branch from the obturator nerve. (12) The tail of the pancreas touches the *lower and back part* of the spleen. (13) In connection with the liver (page 122), we find the following:—"Round ligament—the obliterated remains of umbilical vein and ductus venosus—ascends in free margin of falciform ligament from umbilicus to longitudinal fissure on under surface of liver, where it joins inferior vena cava." Not a word about its connection with the portal vein, or of the fact that the round ligament corresponds only to the remains of the umbilical vein, and has no connection in the adult with the remains of the ductus venosus. (14) The kidney is situated in the *lumbar* region; and so on. Many old-time fallacies are not only preserved but jealously guarded—with knife and forceps—notwithstanding the dastardly attacks of those wretched and deluded transcendental anatomists.

There are many statements made in the work which we would like to discuss at length, could we take them as seriously meant, and did we find them amongst satisfactory surroundings. But when we come upon them in the company of which we have given some examples, we prefer to pass them over.

Proper intelligible descriptions are almost entirely absent from the work. For instance, here is the beginning of the first volume—the first words anatomical in the book:—"*The Vertebræ.* Present for examination—*Body* forms a short column, which presents *Anterior surface*—convex from side to side, concave from above downwards; presents numerous vascular foramina; *Posterior surface*—concave, &c." The muscles of upper limb begin:—"Pectoralis major—anterior surface of inner half of clavicle, corresponding half of front of sternum, cartilages of all true ribs except 1st or 7th, or both; aponeurosis of external oblique. Anterior or outer edge of bicipital groove of humerus—S. by internal and external anterior thoracic nerves." And then we pass on to pectoralis minor.

Why this absence of a general description of these parts? Probably the following paragraph from page 132*ff.* will answer:—"Is it not plain that the aim of the new school is largely to '*explain*,' and to get men, as the phrase goes, to '*understand*' anatomy? In so doing, as already stated, the new school often explains away what is useful, and, for facts, substitutes abstract and one-sided conceptions. It is again submitted that "in the anatomy for medical men, seeing and doing are understanding, and that nothing else is."

Can we say anything in favour of the book before us? We fear not, except, perhaps, that it presents a very large number of anatomical pictures, collected from various sources, roughly but, on the whole, effectively reproduced. Otherwise we can say nothing that is favourable of the work. It is too much of a "cram-book"—too mixed; the author protesteth too much throughout its pages. Its order is bad, at least in our opinion. There is in it an enormous amount of useless and irrelevant matter; and it costs as much as a real anatomy such as Gray or Morris. What can be said in favour of an anatomy which contains the following in the middle of its second volume?—

"THE FORAMEN OF WINSLOW;

"BEING A CONFAB. BETWEEN CANDIDATES FOR THE F.-SHIP.

"PERSONÆ: *Two Candidates for the Fellowship,—one a M.D., Lond., 1st Class Honours, Gold Medallist, &c., from leading Metropolitan School;—the other a M.R.C.S. in General Practice in the Country.*

—**M.D., Lond., 1st Class Honours, Gold Medallist.—"Do you understand, old chappie, about the foramen of Winslow?"**

—M.R.C.S., in gen. pract.—"Well, I think so. It was shown us, dissected, the other day; I put my finger in."

—M.D., Lond., 1st Class Hons., Gld. Med.—"That's not what's wanted. How's it formed?"

—M.R.C.S., &c.—"How's it formed? Well, in front you've got the hepatic artery, bile-duct, port" . . .

—M.D., &c. (*interrupting*)—"Oh, that's nothing to do with it. How's it formed? How did it come about?"

— M.R.C.S.—"I don't know what you mean."

— M.D., &c.—"Come on, old fellow, I'll put you up to it. Look here; here's a towel."

— M.R.C.S., &c.—"Well?"

— M.D., &c. (*manipulating the towel*).—"See how I fold it. Now that's the stomach. You see it's attached to the anterior wall of the abdomen by that bit there; that's the anterior mesentery. Well, the liver gets formed in there somehow. And the stomach's first like this, straight, you see. Then it gets bent up in this way. Then it twists round, so. And that's how the foramen of Winslow comes about. That's the thing to tell 'em.!"

— M.R.C.S., &c.—"Well, thank you; it's very nice, indeed; all from the newest morphology book, I suppose? But tell me, What have you *really* got in front of the foramen of Winslow? What have you got on your finger when you've put it in?"

— M.D., &c.—"Oh, I know nothing about that."

— M.R.C.S., &c.—"What have you got behind it?"

— M.D., &c.—"Oh, that's all damned nonsense."

— M.R.C.S., &c.—"What have you got above it?"

— M.D., &c.—"Rubbish. Shut up! shut up!"

"The above is an authentic colloquy. It took place in the author's dissecting room on March 26th, 1897."

Year-book of the Scientific and Learned Societies of Great Britain and Ireland: Comprising Lists of the Papers read during 1897 *before Societies engaged in Fourteen Departments of Research, with the names of their Authors.* Compiled from Official Sources. Fifteenth Annual Issue. London: Charles Griffin & Co., Ltd. 1898.

The aim of this excellent year-book is—(1.) To give an account of scientific work done throughout the year; (2.) to be a record of progress; and (3.) a convenient handbook of reference. The value of such a book to scientific workers can hardly be over-rated, and to those engaged in literary work it will be very helpful and suggestive.

Idiopathic Ulcerative Colitis (Dysentery). By James F. Gemmel, M.D., of Lancaster County Asylum. London: Baillière, Tindall, & Cox. 1898. Pp. 140.

This work is based on the experience of an unusually severe outbreak of dysentery which occurred in Dr. Gemmel's asylum in 1895. He thus had large opportunities of clinical observation and also of pathological work, for this volume contains notes of eighty *post-mortem* examinations. Dr. Goodliffe, the pathologist of the asylum, has done a good deal of microscopical and bacteriological work on the subject, much of which Dr. Gemmel has included in his book. There are a number of reproductions of micro-photographs of sections of the intestine; also five coloured plates showing the state of the colon in acute and chronic dysentery. There are also coloured drawings of the mode of growth of a bacillus which was found by Dr. Goodliffe in the evacuations of patients suffering from dysentery, and which he looks on as the cause of the disease in his cases. It is a bacillus which seems closely related to the *B. coli communis* and the *B. typhosus.*

The work is carefully written, but contains nothing specially new or noteworthy. Dr. Gemmel urges with much force the view that the "dysentery" that appears in the reports of some asylums and the "ulcerative colitis" of others form but one and the same disease, and holds that it would be much better if this dual and confusing nomenclature was abolished. His notes on treatment are full; he has most confidence in large doses of quinine; he also washes out the intestine with antiseptics, preferring salol dissolved in turpentine—ʒi.–ii. of each to the pint of warm water.

Diseases of the Heart and Aorta. By GEORGE ALEXANDER GIBSON, M.D., D.Sc., F.R.C.P. Ed., F.R.S.E.; Senior Assistant Physician to the Royal Infirmary; Consulting Physician to the Deaconess Hospital; Lecturer on Medicine at Minto House, and on Clinical Medicine at the Royal Infirmary, Edinburgh. Edinburgh and London: Young J. Pentland. 1898. 8vo. Pp. 932.

THE work before us forms the sixth volume of "Pentland's Medical Series." Among the authors of the treatises composing the series are Dr. W. Allan Jamieson (Diseases of the Skin), Mr. George A. Berry (Diseases of the Eye), Dr. P. McBride (Diseases of the Throat, Nose, and Ear), Mr. Skene Keith (Text-book of Abdominal Surgery), Dr. Sidney Martin (Functional and Organic Diseases of the Stomach), Dr. Robert Maguire (Diseases of the Kidneys), and Dr. J. Mitchell Bruce (The Principles of Treatment). Amid this galaxy of medical and literary talent the star of Dr. George A. Gibson shines with undimmed lustre, for he has produced a work which, as he intended, gives "a faithful reflection of the state of medical science and art at the close of the present century."

The first five chapters may be regarded as introductory. They occupy 283 of the 932 pages which compose the volume. The topics discussed are the morphology and embryology of the heart and great vessels, the physiology of the circulation and the organs concerned in carrying on the blood circuit, the pathology of disturbances of the circulation, semeiology—special and general—and the therapeutics of cardiac and vascular disease. The last-named subject is admirably handled. Under the heading "Exercise," Dr. Gibson writes:—"The ascent of gentle acclivities, with frequent stoppages to recover breath, after the manner recommended by Oertel, is worthy of careful attention." (Page 265). How was it that the author, who generally renders honour to whom honour is due, overlooked at this point the following passage, written and published in 1854?:—

> "We must train the patient gradually but steadily to the giving up of all luxurious habits. He must adopt early hours, and pursue a system of graduated muscular exercise; and it will often happen that after perseverance in this system the patient will be enabled to take an amount of exercise with pleasure and advantage which at first was totally impossible, owing to the difficulty of breathing which followed exertion. This treatment by muscular exercise is obviously more proper in younger persons than in those advanced in life. The symptoms of debility of the heart are often removable by a regulated course of gymnastics, or by pedestrian exercise, even in mountainous countries such as Switzerland, or the highlands of Scotland or Ireland. We may often observe in such persons the occurrence of what is commonly known as 'getting the second wind,' that is to say, during the first period of the day the patient suffers from dyspnœa and palpitation to an extreme degree, but by persevering, without over-exertion, or after a short rest, he can finish his day's work, and even ascend high mountains with facility."

Writing in Ireland and in Dublin, we may well claim William Stokes as the pioneer of the so-called Oertel treatment of weak heart. We are bound to state that Dr. Gibson later on in his book admits this, for at page 471 he speaks of "the more active exertion advocated long ago by Stokes, and more recently by Oertel."

> "Oertel's methods comprise two aims—first, diminution of the fluid contained in the body, and more especially that of the blood; and, second, correction of the circulatory disturbances and strengthening of the heart by mechanical means. The first of these consists in the reduction of the amount of fluid allowed to the patient, and the selection of a diet not containing large quantities of water. The second consists in graduated exercise, more especially in the ascent of different degrees of altitude."

Among the changes which Oertel found to attend his system was a diminution of fat throughout the whole system, shown partly by a loss of weight and a lessening of the circumference of the abdomen. Here is what Stokes wrote on this point so long ago as 1854:—

> "It appears likely that the effect of pedestrian exercise is twofold, and that it not only increases muscular energy and development, but also, by augmenting the secretion from the skin, assists in carrying off a large quantity of the oily constituents of the system. Of the beneficial effects of pedestrian exercise upon the weakened hearts of young men, I have seen the most remarkable examples in persons who had spent the summer walking through the Alps, when, during exercise, they were under constant perspiration. Coupling this with the fact of the predominance of obesity in the colder countries, it seems probable that exercise taken in a warm climate is to be preferred in cases where we seek to prevent the accumulation of fat in internal organs. The researches of Schultze (*De Adipis Genere Pathologico*), and of Schmidt (*Jahrbuch*, 1852, p. 147), as quoted in the *Medical Times*, No. 113, may be consulted."

Truly we may say, when we read these passages, "There is nothing new under the sun."

In Chapter VI. Dr. Gibson introduces a very meritorious account of congenital heart disease under the headings ætiology, morbid anatomy, symptomatology, and diagnosis. A few illustrative cases are given, and the account is rendered all the more valuable by a series of beautiful illustrations—indeed, the number and excellence of these throughout the volume is a special feature of the work.

Chapter VII. forms a very able monograph on Diseases of the Pericardium. The different varieties of pericarditis are described and illustrated by cases. Adherent pericardium, mediastino-pericarditis, pneumopericardium, pericardial tuberculosis, and syphilis, pericardial neoplasms, hydropericardium and hæmopericardium are the various maladies which are discussed.

In Chapter VIII. diseases of the endocardium are considered, the question of bacterial infection receiving special attention. In reading the pages which treat of malignant endocarditis "infectious and infecting," as Dr. Gibson so appropriately terms it, we are reminded by the grievous loss which scientific medicine and pathology have lately suffered in the too-early death, on December 21, 1898, of Dr. Alfredo Antunes Kanthack, the talented and much-lamented Professor of Pathology in the University of Cambridge.

Several very beautiful illustrations show the macroscopic and microscopic changes in endocarditis of different kinds.

The general question of chronic affections of the orifices and valves is discussed in Chapter IX. Very valuable statistics as to the relative frequency of the different forms of valvular disease and their respective fatality have been compiled by Mr. Lockhart Gillespie from the records of the Edinburgh Royal Infirmary during the last five years. These up-to-date statistics have been thrown into a set of tables which are inserted in this chapter.

The choice of digitalis or of strophanthus in cardiac inadequacy must always engage the physician's most anxious attention. Dr. Gibson puts the case well when he says (page 467):—"Speaking generally, when there is a necessity for rapid action, and if at the same time there be much irritation of the digestive mucus membrane, strophanthus is to be preferred. If, on the other hand, there should be much dropsy and considerable diminution of the renal secretion, digitalis is of greater utility."

Chapters X. to XIII. inclusive are devoted to affections of the aortic, mitral, pulmonary, and tricuspid orifices respectively. Then follows a long chapter on affections of the myocardium, including cardiac weakness, cardiac atrophy, fatty heart in its two forms of infiltration and degeneration, acute and chronic myocarditis, cardiac dilatation, cardiac aneurysm, rupture of the heart, cardiac hypertrophy, chronic infective processes such as tuberculosis and syphilis, new formations, and wounds of the heart.

One of the most interesting and instructive chapters in the book is the fifteenth, on complex sensory and motor affections of the heart, such as angina pectoris, recurrent tachycardia, and recurrent bradycardia.

Diseases of the aorta form the subject-matter of the sixteenth and last chapter. The morbid conditions described are acute and chronic aortitis, aneurysm, and rupture.

There are two appendices and two indexes—general and of authors' names. Appendix I. illustrates the application of radiography in the diagnosis of heart affections. Appendix II. gives an ample bibliography for each chapter in the book.

To summarise: Dr. Gibson has, in our opinion, written a book which must be regarded as one of the very best textbooks on the subject, and which is bound to live.

The Johns Hopkins' Hospital Reports. Vol. VII. No. 3: Report in Pathology. A Review of the Pathology of Superficial Burns, with a Contribution to our Knowledge of the Pathological Changes in the Organs in Cases of Rapidly Fatal Burns. By CHARLES RUSSELL BARDEEN, M.D. Baltimore: The Johns Hopkins Press. 1898. Pp. 43.

FIVE children were so severely burned that they all died in a few hours. The *post-mortem* examinations were made very soon after death. The appearances found form the subject of the present paper.

In the first section a brief history is given of the previous work, both from human autopsies and experiments on animals, with a review of the various theories advanced as to the probable cause of death in extensive burns. Many of these theories have little or no foundation. Vasomotor change, thrombosis, toxæmia, and shock have more or less support in fact. The author's review is extensive and able. We notice, however, one historical error. He refers to the well-known story of the boy who died after having had his skin gilded, and says it "dates back to Galen, or even earlier:" The gilding took place at the coronation of Leo X. 1513, while Galen died in 201.

In the second section a summary is given of the chief lesions which were noticed in the five cases studied.

In the third section a particular description is given of the alterations found in the lymphatic tissues. Notwithstanding the early death, these were extremely marked, and were found wherever lymphocytes were collected into nodular masses. In the lymphatic glands there was œdema, multiplication of cells, swelling of the cells in the germinal centres; the cells here become coarse, granular, and vacuolated, and the nuclei, at first vesicular, become knotted irregular bands of chromatin, and finally go to pieces. A degeneration of the protoplasm follows, and large phagocytic cells, similar to those which line the lymph sinuses, appear among the leucocytes in the degenerating germinal centres. Outside the degenerating focus is a zone of swollen leucocytes, surrounded by one in which the leucocytes are normal.

In the Malphigian bodies of the spleen and in the bone-marrow similar degenerative foci are seen. In the marrow a normal or increased number of nucleated red corpuscles are seen. In the alimentary canal from the tonsils downwards, all the lymphatic tissue is swollen, and evidences degeneration, with little or no cell multiplication.

It is supposed that the chief cause of these changes, and of death, is the production of some toxin in the blood. The toxin-holding plasma escapes with more than normal rapidity near the centre of the lymphatic follicles. This causes the œdema, and carries the lymphocytes into the peri-follicular lymph sinus, while the poison causes the degenerative changes in the cells. The poison hypothesis is supported by the fact that "identical changes have been found in the lymphatic glands of children who have died from diphtheria and other acute infectious diseases in which it is believed that toxins circulate in the blood. Again, similar alterations can be produced experimentally in animals by the injection of ricin, abrin, the diphtheria toxin, and similar complex organic poisons. We have, therefore, in these lesions in the lymphatic glands good objective proof that toxins of a highly virulent nature must have been circulating in the blood of the children whose tissues we have been studying."

This able and interesting paper terminates with an extensive list of writings on the subject of the causation of death from burns.

A reference is given to a drawing, but there was no plate in the copy which was sent to us for review.

Text-Book of Histology, including the Microscopic Technique. By DR. PHILIP STÖHR. Second American Edition from Seventh German Edition. Translated by DR. EMMA L. BILLSTEIN. Edited, with additions, by DR. ALFRED SCHAPER. With 292 Illustrations. London: J. & A. Churchill. 1898. Pp. 424.

PROFESSOR STÖHR'S admirable "Lehrbuch der Histologie" was published in 1887, and from the moment of its appearance to the present time has enjoyed a world-wide popularity. The estimate in which it was held in this country was shown by the fact that Professor M'Kendrick incorporated it in his "Text-book of Physiology," while the present translation shows that its value is equally recognised on the other side of the Atlantic.

The first edition was scarcely more than half the size of the present, and the number of illustrations were only 199 against 292. The distinguishing feature of the book is its eminently practical character. In each chapter an account of the structure of the tissues or organs in question is given tersely, but with masterly clearness and completeness. The text is copiously illustrated with drawings, almost all original, and all actual reproductions of the objects without any schematising. Appended to each chapter there is given in smaller type the methods to be employed in making the preparations, and each drawing has, with its description, a number referring to the technical part, showing the method by which it has been prepared.

Preceding the special microscopic anatomy there is a considerable section on general *technique*, in which all the methods of hardening, cutting, staining, mounting, drawing, and measuring microscopic objects are fully described. In the translation the editor (Dr. Schaper) has placed the microtome *technique* at the end as an appendix. He has also enlarged the chapter on the uterus, so as to give due consideration to the different functional conditions of this organ; he has written a new chapter on the placenta, and has added several new figures—most of them original and of great beauty—one from Böhm and Davidoff's "Histology," and two from the "Human Embryology" of Professor Minot. These additions greatly enhance the value of the book.

Dr. Billstein's translation appears to us to be exceedingly good; indeed, the text reads like an original English work. This, unfortunately, cannot be said of all American translations. There is a short list of useful works of reference, and a good index. The volume is handsomely brought out, and cannot fail to gain a wide circulation among the ever-growing number of histological workers.

Elements of Histology. By E. KLEIN, M.D., F.R.S., and J. S. EDKINS, M.A., M.B. Revised and Enlarged Edition. London, Paris, New York, and Melbourne: Cassell & Co. 1898. Pp. 500.

EIGHT years have elapsed since the publication of the last edition of Dr. Klein's well-known manual, although the work has been reprinted in 1895. Since 1889 very great changes have taken place in our ideas on many branches of histology, while in some departments the advance in knowledge, due to improved methods, amounts to nothing less than a revolution. It was, therefore, necessary to introduce considerable additions and alterations into the present issue of a book which has long been, and seems likely to continue, a standard work on its subject. In all branches of histology important advance has been achieved in recent years, but it is chiefly in our knowledge of the structure of protoplasm and nuclei, or in cytology, and above all in our knowledge of the structure of the central nervous system, that the greatest progress has to be recorded.

In making the necessary alterations in the new edition of his book Dr. Klein has associated with him Mr. Edkins, who is responsible for the chapters on the brain and medulla, and those on the alimentary canal. The remainder of the work is, we understand, by Dr. Klein himself.

A very large number of additional illustrations will be found in this edition. Very many of them are photographs. Of these some are exceedingly good, and serve well to convey the appearance they are intended to illustrate, but others are much less successful. On the whole we think that photographs are far inferior to good drawings for the purpose of illustrating histological appearances. A micro-photograph will show only objects in one place, but the histologist, by the use of the fine adjustment, brings into view different depths of the section one after the other, and continues in his mind the successive images. This can be reproduced in a drawing, but not in a photograph. Whoever compares in these pages the drawings and photographs will, we think, give the preference to the former. Still we have nothing but praise for this volume, whose 296 illustrations furnish an admirable histological atlas, and whose terse and well-written text omits nothing that is essential. It is unquestionably one of the best of the admirable series of manuals to which it belongs, and the present issue cannot fail to enjoy a popularity as great as that which was enjoyed by the previous editions.

The Cold-Bath Treatment of Typhoid Fever. By F. E. HARE, M.D.; Late Resident Medical Officer Brisbane (General) Hospital, Queensland. With Illustrations. London: Macmillan & Co. 1898. 8vo. Pp. 196.

IT is a remarkable fact that, in the British Islands, where enteric or typhoid fever is always endemic, and in autumn epidemic, the cold-bath treatment of the disease is little known and seldom or never practised. Such a state of things redounds not to the credit of British and Irish physicians, who have not even attempted to combat the deep-rooted prejudice against cold-baths in fever which exists in the minds of the people.

In the pages of the book which lies before us, Dr. F. E. Hare, formerly Resident Medical Officer to the Brisbane (General) Hospital, Queensland, brings forward cogent reasons for the general adoption of the cold-bath treatment of typhoid fever, based on "the experience of a consecutive series of *nineteen hundred and two cases* treated at the Brisbane Hospital."

The author was induced to attempt this sketch of the subject by the considerations that there is not, so far as he is aware, any single modern work upon the subject in the English language; the treatment also in recent years has made great and steady advances in various parts of the world; and, lastly, there is on hand at the Brisbane Hospital an abundance of clinical-material, more than sufficient indeed definitely to prove the value of the treatment without having recourse to statistics from elsewhere.

The matter contained in this book is mainly a record of personal observations made in the fever-wards and *post-mortem* room of the Brisbane Hospital.

After discussing some general considerations in an introductory chapter Dr. Hare gives an account of the routine treatment of typhoid fever in the Brisbane Hospital, together with practical details relative to the baths and the mode in which they are administered.

This part of the subject is well illustrated by a series of photographs explanatory of the manner in which the baths are given. The bathing is evidently effected easily and rapidly, and with the minimum of exertion on the patient's part. Nurses have frequently stated to Dr. Hare and his colleagues that "the administration of a bath is to them less onerous than that of a general cold-sponging" (page 22).

The number of baths necessary in wards containing only acute cases, is one to about 12 patients. The bath treatment is commenced as early as possible in the fever. Whenever the temperature in the rectum registers 102·2° F. (39° C.) or upwards, a bath at 68° F. is given—the patient being immersed for from 10 to 15 minutes. Brand, of Stettin, who re-introduced the treatment, advises that during immersion the patient's body should be subjected to constant friction by the attendant. In the Brisbane Hospital these frictions were generally omitted, as the nursing staff was not sufficiently large to permit their application in all cases. Dr. Hare frankly states that they were omitted with impunity probably because of the high average temperature of the bath-water in Queensland, which ranged from 75° to 80°, as it flowed from the main, during the greater part of the fever-season in that country.

As regards expense, Dr. Hare considers that the treatment is distinctly economical, except in the one item of ice. This, however, is due to the climate, and would hardly be felt in cooler latitudes. Each complete set of bathing appliances need not cost more than £7 or £8. Some extra male assistance is required.

In subsequent chapters the author discusses the influence of the treatment on the symptoms and complications of enteric fever, on the duration of the disease and the occurrence of relapses, and on mortality and prognosis. As regards mortality, "under the bath-treatment an improvement has taken place in the Hospital mortality amounting practically to 50 per cent.; in other words seven out of every hundred cases admitted have been saved by the use of systematic cold-bathing" (pages 103, 104).

The death-rate under expectant treatment *plus* cold-sponging during nearly 5 years ending with 1882 averaged 14·8 per cent., and was fairly constant each year. In the 10 years ending with 1896 the death-rate under the bath-treatment averaged 7·5 per cent. The former figure related to 1,828 cases with 271 deaths, the latter to 1,902 cases with 143 deaths. These are certainly strong facts in favour of the treatment, but it is to be noted that a remarkable falling off in the number of cases treated occurred in 1890, and continued to 1896. Presumably, therefore, the cases were not only few but of a mild type, and with a low rate of mortality, in the non-epidemic period from 1890 to 1896.

In Chapter VI. Dr. Hare very fairly and impartially discusses the contra-indications to the bath-treatment, and the conditions and symptoms which require modifications in it. *En passant,* we may observe that the author expresses himself in favour of the operative treatment of perforation. "There can be little doubt," he writes, "that the treatment of perforation, in hospitals 'at any rate,' will in future be mainly by laparotomy" (page 186).

The impression left upon our mind by a perusal of this book is that it has been written by an able and enthusiastic physician, and that sound practical teaching is enshrined in its pages.

Atlas of Legal Medicine. By E. von Hofmann, Professor of Legal Medicine and Director of the Medico-Legal Institute of Vienna. Authorised Translation, edited by F. Peterson, M.D., and A. O. J. Kelly, M.D. Fifty-six Plates in Colours and 193 Illustrations in Black. London: The Rebman Publishing Co. 1898.

Although several atlases of legal medicine have been published in Germany, we are not aware of any having been brought out in England or America—nor, indeed, do there appear to be translations of those which were made in Germany. We are, therefore, the more disposed to welcome this translation of the latest German atlas—that by Prof. von Hofmann.

It forms a book of octavo size; the plates and illustrations are printed on thick glazed paper, and the descriptive letterpress is generally on the page opposite, so that the plate can be examined and its description read without turning over pages. The subjects of the illustrations are much the same as those which we meet with in other similar atlases, with this exception—that, as the work is intended to be used in connection with a text-book, those subjects which are illustrated in every work, such as spermatozoa and blood spectra, are omitted; thus more space is obtained for the illustration of less common subjects.

The descriptive letterpress is good. When cases are illustrated—such as cases of hanging, poisoning, &c.—a brief but well-written and interesting account of the occurrence is given; in other subjects a few explanatory words are quite sufficient.

Fifty-six plates are printed in colour, and are on the whole very good. Of course there are differences in quality, but most are very good, and some are distinctly admirable. For example, what could be better than Plate 39, representing the œsophagus and stomach from a case of carbolic acid poisoning? Others, although perhaps rather less artistic, are very instructive; very few are poor.

There are 193 illustrations in black, most of which are reproductions from photographs. All photographs are true to nature, but not all photographs are instructive. However, Prof. v. Hofmann has been very fortunate in obtaining suitable objects for photography. What could be more ghastly and realistic than Figs. 173–177, illustrating the position of the knot in hanging? There is an excellent series of photographs representing the various forms of hymen, both virginal and otherwise. Injuries of the head and skull are very fully represented.

Altogether we are very pleased with this atlas. It is well printed, and reflects credit on all those who were concerned in its production. Its cheapness (15s.) makes it exceedingly good value for the money.

Atlas of Methods of Clinical Investigation, with an Epitome of Clinical Diagnosis and of Special Pathology and Treatment of Internal Diseases. By DR. C. JAKOB, formerly First Assistant in the Medical Clinic at Erlangen. Authorised Translation, edited by A. A. ESHNER, M.D., with 68 Coloured Plates and 64 Illustrations in the Text. London: The Rebman Publishing Co. 1898.

THIS work consists of three parts. The first consists of twenty-two coloured plates illustrative of the methods of clinical diagnosis; thus there are plates of the blood in health and disease, representing its appearance as seen under the microscope both unstained and stained in various ways. The microscopic appearance of the secretions of the mouth, of vomit, of sputum, and of urine are similarly portrayed. The colour reactions employed in the investigations of stomach contents and of urine are illustrated by pictures of test tubes, &c., suitably tinted.

Some of these plates are good, especially those representing microbes; those of the blood are over-coloured, and give a rather coarse impression; those of urinary crystals and tube casts are fair.

The second part consists of eight plates illustrating the relation of the internal organs to the surface of the body. We are surprised to find there are no illustrations of the topography of the brain.

The third part contains plates illustrating the ordinary diseases of the lungs, heart, and abdominal organs. Thus, as an illustration of pneumonia of the right base, we have a figure of a man's back, which is shaded over the base of the right lung, meaning thereby that this portion of the chest is dull on percussion, while a mark in the middle of the shaded area signifies that crackling râles are to be heard. In a similar manner diseases of the heart are illustrated, signs and hieroglyphics indicating murmurs, accentuated sounds, &c. The illustrations of abdominal diseases represent merely the locality and size of diseased organs, tumours, &c. We are not impressed with the usefulness of this part of the work. A good description is much better than a poor diagram.

The fourth section, occupying 242 pages, is a kind of introduction to clinical medicine, containing the mode of case-taking, methods of investigation, and a brief account of the symptoms and treatment of diseases. In our opinion this part of the work is very poor; the sections on the clinical investigation of the various organs and systems are not at all equal to those contained in several works on the subject recently published. The notes on symptoms and treatment are often useless, and sometimes eminently calculated to mislead. What is to be said of the following remarks on the treatment of perityphlitis (the italics are ours):—" If aggravation takes place as well as when an abscess forms, celiotomy is to be undertaken (*exploratory puncture is entirely without danger*)."

PART III.

SPECIAL REPORTS.

REPORT ON DISEASES OF CHILDREN.

By LANGFORD SYMES, F.R.C.P.I.; Physician Dublin Orthopædic Hospital; Physician to the Homes for Destitute Children; Member of the Childhood Society, &c., &c.

I. INFANTILE SCURVY.

A COLLECTIVE investigation has been elaborately organised in America touching scurvy in infants, and the Committee now publish (*Archives of Pediatrics*, July, 1898) its observations on 379 cases reported by 138 observers. They are most valuable. The sexes are similarly affected. The favourite age was 10 months, but from 7 to 14 months it is most likely to occur. The earliest was 3 weeks, and the latest 9 years. It chiefly attacks the rich and "well-to-do," 83 per cent. being in private practice, with only 17 per cent. in hospitals. It occurs in the best hygienic surroundings, insanitation being very rare. The diseases chiefly associated therewith were diarrhœa and indigestion. Foods were strictly investigated with the following important results which are tabulated in order of frequency:—

107 cases had been chiefly fed on sterilised milk.
83 ,, ,, ,, Mellin's food.
48 ,, ,, ,, malted milk.
38 ,, ,, ,, condensed milk.
24 ,, ,, ,, amylaceous food (not proprietary).
20 ,, ,, ,, Pasteurised milk.
16 ,, ,, ,, milk.
14 ,, ,, ,, peptonised milk.
13 ,, ,, ,, Reed & Carnrick's soluble food.
12 ,, ,, ,, table food.
12 ,, ,, ,, breast milk.
6 ,, ,, ,, "Imperial granum."

5 cases had been chiefly fed on raw milk.
4 ,, ,, ,, lactated food.
2 ,, ,, ,, Liebeg's food.
2 ,, ,, ,, Nestlé's food.

The six chief symptoms are found to be:—

1. *Hæmorrhages* (368 cases)—Consisting of cutaneous hæmorrhages, purpuric eruptions, or ecchymoses in 182 cases, and mucous hæmorrhages in 164 cases, chiefly from the bowels and nose. There were, in addition, 22 instances of hæmaturia, making total hæmorrhages 368.

2. *Swellings in limbs* (344 cases)—About the joints in 165, especially knees and ankles, while 179 instances affected the shafts of the limbs, chiefly thighs and legs.

3. *Pseudo-paralysis, unwillingness or disability to move* (319 cases)—Probably dependent on pain, since no true paralysis occurs; also chiefly in the legs, or legs and arms together.

4. *Pain on moving or handling* (314 cases)—Chiefly in legs and arms, legs being involved in most cases.

5. *Diseased gums* (313 cases)—particularised as—Swelling, 293; discoloration, 259; sponginess, 249; bleeding, 188; ulceration, 91.

The affection of the gums was proved to occur equally well when there are no teeth as when teeth have developed.

6. *Anæmia and malnutrition* of varying degree (254 cases). Other concomitant signs are—Fever, rickets, constipation, weakness of the back and redness of the swollen parts. The possible diseases for which it may be mistaken are chiefly rheumatism, sarcoma of the leg, and paralysis. It is essentially chronic, terminates only on institution of the proper treatment, marked improvement commencing within three or four days, with recovery within three weeks.

The treatment which proved most effective was—Change of diet, beef juice, fruit juice, with or without drugs.

"There is no evidence that any treatment with drugs has an appreciable effect upon the disease."

The conclusions to be drawn from this investigation are—

1. That scurvy develops after the prolonged employment of some diet unsuitable to the child.

2. That the various proprietary foods and sterilised milk are particularly prone to be followed by scurvy.

3. That the further removed from natural food the child's diet is, the more likely is scurvy to develop.

This very interesting investigation, as far as it goes, stamps indelibly sterilised milk and proprietary foods with more than ordinary suspicion, and much as it evidently pained the Committee to find these results in a city like New York, where the milk supply is so beautifully managed, we cannot help agreeing with Dr. Holt, who concluded his address at the meeting by saying:—"That there is danger in the prolonged use of sterilised milk, it seems to me, is something we cannot escape if we believe these men have told the truth."

II. EMPYEMA.—(Causes of fever after operation).

Dr. Augustus Caillé, Professor of Diseases of Children in New York, contributes a most able article to the August number of *Archives of Pediatrics* on this subject.

The correct interpretation of fever after operation for pyothorax, is, in some instances, extremely simple, and in others extremely difficult, but it becomes a matter of great importance to correctly interpret such fever, and remove any source of irritation, if present, before the patient is exhausted.

In all about 300 cases have been investigated; briefly, the findings were as follows:—

In a small group of cases the temperature dropped to normal and remained so. In the other cases the actual causes of subsequent fever were variously found to be—

Drainage tube slipping into the chest.
Chronic empyema with thickened membranes.
Iodoform poisoning with fever, vomiting, and rash.
Retention of urine.
Constipation.
Gastric disturbance with clay-coloured stools.
Necrosis of rib, and secondary abscesses.
Specific infections of diphtheria, malaria, vaginitis, measles.
Double empyema, pus forming in the opposite side.
Pneumonia, or tuberculosis, of the same side.
Albuminuria or nephritis.
Deep-seated accumulations of pus.

Finally, attention is drawn to certain cases which do well for two or three weeks after operation, and then show a rise of temperature. The discharge from the tube has almost ceased. No complications can be detected by examination of the urine, blood and various organs. If in this class of cases the tube be removed and the patient be taken out of doors in spite of the fever, a rapid and satisfactory improvement takes place.

The investigation shows that in the vast majority of cases a rise of temperature is observed at some time or other after operations for pyothorax, and that only in a very few cases the temperature remains normal.

This rise of temperature may mean very little, but it always indicates something which we should endeavour to locate and correct.

III. EMPYEMA.—(Means of washing the pleural cavity in a warm bath.)

A. Zeman accidentally hit upon this method as follows :—A patient was operated on for right empyema ; a large quantity of pus escaped and the cavity was irrigated. A bath was subsequently ordered for cleansing purposes, directions being given that no water should enter the opening. This it accidentally did, and when Zeman arrived the wound was submerged, and the water entering and issuing from the chest with great force at each respiration, carrying with it masses of thick pus and coagula. He then placed his hand over the opening, and it was drawn in by a great force. From that time the patient was given daily baths. Ordinary water was filtered and boiled, but no disinfectants were used. The water in the tub stood about 3 inches above the opening, and the temperature was 95° to 99·5° Fahr. The bath usually lasted from ten to fifteen minutes.

This has been since used frequently, and those trying it say it is simpler, cleaner, easier than others, and in the ten or fifteen minutes' bath the patient will be washed out two or three hundred times instead of three or four times.

Boiled water or boric solution are said to be sufficient, and it is particularly recommended with children. Of course free expansion of the chest must be possible.

PART III.

MEDICAL MISCELLANY.

◆

Reports, Transactions, and Scientific Intelligence.

◆

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—EDWARD H. BENNETT, M.D., F.R.C.S.I.
General Secretary—JOHN B. STORY, M.B., F.R.C.S.I.

SECTION OF PATHOLOGY.

President—J. M. PURSER, M.D.
Sectional Secretary—E. J. McWEENEY, M.D.

Friday, December 2, 1898.

J. A. SCOTT, F.R.C.S.I., in the Chair.

Some Recent X-Ray Work.

DR. HAUGHTON, after referring to the fact that much satisfactory work had been done since his last communication before the Academy on the subject, drew attention to the more important recent successes of the process, mentioning observations on normal changes in bone structure, and enumerating the successes of the process in congenital and acquired deformities of bone, in diagnosis, prognosis and treatment of fractures and their sequelæ, dislocations, epiphysiary separations, diseases of bone in dentistry, and especially in the localisation of foreign bodies by the splendid apparatus devised by Mr. Makenzie-Davidson, referring in this connection to the accurate results obtained by Major Battersby, M.B. (T.C.D.), R.A.M.C., after the recent engagement at Omdurman. Further reference was made to applications in medicine in conditions affecting the outline of heart and aorta, and certain structural changes in lungs.

The "traumatism" sometimes associated with "X-rays" was also discussed, and also the advantages of the Röntgen process in medico-legal evidence, after which lantern slides illustrating applications of the process were exhibited.

Dr. Scott considered the reducing to figures the comparative lengths of exposure of different tissues was very interesting.

Dr. Lane Joynt said that the question of causing dermatitis was most important. Recently some purely electrical experimenters had endeavoured to show that dermatitis is produced by any high electrical discharge quite independent of the X-ray tube. In the *Electrical Review* some time ago reports showed that one might exceed about 500,000 volts, and get to 1,000,000 volts; that the risk of brush discharges in the neighbourhood was very great, and that dermatitis frequently followed, and could be produced at will by any X-ray tension or power. He thought that a good deal of false blame had been laid to the charge of the X-rays; he himself had never seen a case of dermatitis.

Dr. E. J. McWeeney said that he should be glad to know what effect caseous material had upon the rays, and what effect upon the rays calcification had? Again, what amount of opacity calculi of different kinds had? Was it possible to get shadows from those soft cholesterin and cholesterin pigmentary calculi found in the gall bladder? He had seen some X-ray photographs of tuberculous subjects in which the bones showed a remarkable amount of transparency, which might be due to the anatomical fact that the spaces in the cancellous tissue were larger than normal or to a smaller deposition of lime salts.

Dr. Maunsell would like to know if in the skiagraphs of Pott's fracture Dr. Haughton had found that the astragalus was dislocated slightly backwards as well.

Dr. Knott said that in cases of epiphysiary disjunction the solution of continuity always ran through the bone near the cartilage.

Dr. Haughton, referring to Dr. McWeeney's remarks, said that he had been unable to obtain any good photographs of tubercular consolidation in the apex of the lungs owing to the movements of respiration. Caseous material was rather transparent, considerably more so than pus, the latter being nearly as opaque as water. In calcareous deposits very considerable opacity resulted, as the calcareous salt contained lime whose atomic weight is about 40, and the higher on the atomic scale the greater the opacity. Phosphatic calculi were rather transparent, oxalic were the most opaque, and uratic intermediate. Cholesterin was extremely transparent. Regarding the relative transparency of tubercular cases in comparison with normal, strumous subjects were often found with very transparent bones, probably due to a condition of malnutrition. There seemed to be possibly a smaller deposition of lime salts, perhaps associated with an enlargement of the cancellous tissue; but he himself thought the cancellous tissue presented a normal outline, while the transparency was greatly increased. In reply to Mr. Maunsell had not observed dislocation backwards in Potts' fracture.

Rupture of Ascending Aorta.

MR. MAUNSELL read the notes of a case of "Multiple Aneurysms in a Young Woman," and showed the specimen. The woman was aged thirty-seven, married, and gave a history of having dead born children, which suggested syphilis. The aneurysms were two fusiform dilatations of the thoracic aorta and a sacculated dilatation of the cœliac axis. The latter was the only one diagnosticated during life, and its clinical history was very puzzling, as in many ways it simulated a pyloric growth. The woman died of syncope three weeks after coming under observation.

Spontaneous Rupture of First Stage of Aorta.

DR. J. LUMSDEN.—The young woman (aged twenty-three) from whom the specimen was taken was brought dead into Mercer's Hospital in June, 1898. Very little information as to the girl's previous health was obtained, but it would appear she was in apparently good health, and was seen in the active discharge of her duties as a shop assistant a few minutes prior to her death, and she was evidently in the act of lifting down a heavy box from a shelf when she suddenly dropped dead. At the autopsy the body was found to be fairly well nourished, abdominal contents normal, lungs normal. On opening thorax the pericardium was at once seen to bulge forwards, and when incised was found to be quite full of clots. A small linear rupture, which just admitted an ordinary cedar pencil, was discovered at root of ascending aorta on its anterior aspect, immediately above the anterior sinus of Valsalva. When the interior of vessel was examined a rent was found in the aortic tunics, commencing just above junction of right and left posterior aortic cusps, encircling the aorta parallel to free margin of valves, about 1¼ inches in length. Except at the point of rupture in front only the intima and media were apparently involved in the rupture, and, doubtless, had not the outer coat given way anteriorly a dissecting aneurysm might have resulted. Macroscopically there was no evidence of any extensive degeneration of aortic walls, or, indeed, of the heart either, but a few small opaque yellowish-white superficial and irregular patches in the endothelium and sub-endothelial tissue were to be seen. They projected slightly above surface, and could be rubbed off in places from subjacent layers, which presented a normal appearance. There was no dilatation of aorta, no narrowing of hyperplasia. Left ventricle perhaps somewhat hypertrophied, but no evidence of valvular lesion to be found. The condition is an extremely rare one, and it is very hard to understand how, in the absence of any evidence of advanced degenerative changes, rupture could have taken place. Microscopic sections are to be cut, of course, and then possibly some light may be thrown on the subject. Dr. Lumsden had purposely neglected to do so up to this, as he was anxious the condition should be seen as presented at autopsy.

Aneurysm of Descending Arch of the Aorta Perforating the Œsophagus.

Dr. W. J. Thompson.—The subject of this aneurysm was also a builder's labourer, aged forty-seven, and presented no appearance of wasting. When brought to Jervis-street Hospital on the 2nd November, 1898, it was found that life was extinct, and blood was still oozing from the mouth and nostrils. The history given was that when going to lift some weight he suddenly collapsed, and that when he had fallen blood came from his mouth. He had never complained of pain about the back or thorax; never had any difficulty in swallowing; was always strong and healthy; had not missed one day's work for years. At the *post-mortem* the stomach and intestines as far as the ileo-cæcal valve were found full of blood. Corresponding to the level of the seventh dorsal vertebræ there was a ragged opening in the œsophagus about the size of a sixpence, placed rather posteriorly, laterally, and to the left. This communicated with an aneurysmal sac which sprang from the aorta anteriorly, laterally, and towards the right. The opening between the aorta and sac had a diameter of about three-quarters of an inch. The sac itself was small, had thin walls, which seemed to be made of the outer covering of the aorta. There was only one small atheromatous patch situated in the transverse portion of aorta.

Aneurysm of Ascending Arch of Aorta extending into Lung.

Dr. W. J. Thompson.—The patient from whom this specimen was got was a well-nourished man, aged forty-five; occupation, a builder's labourer, and was admitted to Jervis-street Hospital on November 13th, 1898. He was carried in by the police in a collapsed state, having had a severe attack of hæmoptysis while walking along the street. The upper part of the right lung, as far down as the 5th rib in the nipple line, was dull on percussion, no tumour or pulsation, but a slight thrill could be felt on palpation. The veins on right side of thorax were prominent and distended; there was no swelling of arm or neck, and total absence of pain. The radial pulse on right side was much weaker than on left, and occasionally the patient completely lost his voice. There was no difficulty in diagnosticating aneurysm of ascending arch, extending into right lung, and the case looked hopeless. The patient died suddenly after being three days in hospital. The specimen shows a sacculated aneurysm, embracing the upper half of ascending arch, lying more posteriorly and laterally than anteriorly, behind superior vena cava. It extended in an upward and outward direction for about two inches, its width being about the same as its length. The sac seemed at its commencement to be made up of pericardium and pleura, but at its apex it was made up of semi-consolidated lung tissue. The whole length of the aorta was studded with atheromatous patches, varying in size from that of a sixpence to that of a two shilling piece. Evidently the aneurysm had its origin in one of those patches, and had suddenly burst into lung tissue. The two upper lobes of the right lung were consolidated.

The Section then adjourned.

MUMPS WITHOUT INFLAMMATION OF THE SALIVARY GLANDS.

At a recent meeting of the Société Médicale des Hôpitaux, Dr. M. A. Beclere read a case which showed, without doubt, that mumps may manifest itself by orchitis without parotitis or inflammation of the other salivary glands. A boy, aged 15 years, was suddenly seized with violent headache, pyrexia, and repeated vomiting. On the fifth day the right testicle became painful. Dr. Beclere saw the boy on the eighth day, the case having been already pronounced to be one of acute tubercular orchitis. Dr. Beclere ascertained that three of the patient's school-fellows had mumps, and diagnosticated the case as one of that disease. Resolution was complete on the fourteenth day. All doubts as to the diagnosis were soon removed, for the boy's two sisters had typical attacks of mumps. Dr. Beclere pointed out that the diagnosis should be made by the history of an epidemic, the sudden onset of the illness, and the interval of four or five days between the appearance of the general symptoms and the supervention of orchitis.—*The Lancet.*

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D. Univ. Dubl.;
P.R.C.P.I.; F. R. Met. Soc.;
Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

Vital Statistics

For four Weeks ending Saturday, December 31, 1898.

The deaths registered in each of the four weeks in the twenty-three principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

Towns	Weeks ending				Average Rate for 4 weeks	Towns	Weeks ending				Average Rate for 4 weeks
	Dec. 10	Dec. 17	Dec. 24	Dec. 31			Dec. 10	Dec. 17	Dec. 24	Dec. 31	
23 Town Districts	24·0	23·9	21·5	25·1	23·6	Limerick -	33·7	37·9	11·2	26·7	27·4
Armagh -	35·6	28·5	42·8	14·3	30·3	Lisburn -	12·8	21·3	12·8	17·0	16·0
Ballymena	33·8	28·2	22·5	22·5	26·7	Londonderry	14·1	17·3	22·0	18·8	18·1
Belfast -	25·3	23·3	20·0	20·5	22·3	Lurgan -	50·2	31·9	36·5	36·5	38·8
Carrickfergus	11·7	29·2	5·8	11·7	14·6	Newry -	24·1	16·1	20·1	8·1	17·1
Clonmel -	19·5	4·9	14·6	19·5	14·6	Newtownards	22·7	34·0	28·3	28·3	28·3
Cork -	25·6	27·7	28·4	36·7	29·6	Portadown -	6·2	6·2	12·4	12·4	9·3
Drogheda -	11·4	15·2	7·6	15·2	12·4	Queenstown	11·5	40·2	11·5	34·4	24·4
Dublin -	24·3	24·6	24·6	26·7	25·0	Sligo -	10·2	30·5	5·1	10·2	14·0
Dundalk -	8·4	8·4	12·6	29·3	14·7	Tralee -	39·2	11·2	11·2	16·8	19·6
Galway -	26·4	7·6	18·9	56·7	27·4	Waterford -	21·9	33·8	23·9	23·9	25·9
Kilkenny -	9·4	4·7	0·0	61·4	18·9	Wexford -	22·6	13·5	27·1	36·1	24·8

In the week ending Saturday, December 31, 1898, the mortality in thirty-three large English towns, including London (in which the rate was 18·4), was equal to an average annual death-rate of 19·1 per 1,000 persons living. The average rate for eight principal towns of Scotland was 18·2 per 1,000. In Glasgow the rate was 17·7. In Edinburgh it was 18·8.

The average annual death-rate represented by the deaths registered during the same week in the twenty-three principal town districts of Ireland was 25·1 per 1,000 of their aggregate population, which, for the purpose of this return, is estimated at 1,007,798.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 2·2 per 1,000, the rates varying from 0·0 in twelve of the districts to 9·4 in Kilkenny—the 13 deaths from all causes registered in that district comprising one from diphtheria and one from diarrhœa. Among the 120 deaths from all causes registered in Belfast are one from measles, one from scarlatina, 3 from whooping-cough, and 10 from enteric fever. The 53 deaths in Cork comprise one from each of the following:—typhus, whooping-cough, diphtheria, and enteric fever. Among the 19 deaths in Limerick are one from measles, one from whooping-cough, one from enteric fever, and one from diarrhœa. Two of the 12 deaths in Waterford were from whooping-cough. The 15 deaths in Galway comprise one from measles and one from typhus.

In the Dublin Registration District the births registered during the week amounted to 312—152 boys and 160 girls; and the deaths to 186—97 males and 89 females.

The deaths, which are 16 under the average number for the corresponding week of the ten years 1888–1897, represent an annual rate of mortality of 27·7 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 26·7 per 1,000. During the fifty-two weeks ending with Saturday, December 31, the death-rate averaged 26·7, and was 0·1 under the mean annual rate for the ten years 1888–1897.

Only 14 deaths from zymotic diseases were registered, being one under the low number for each of the two weeks preceding, and 9 under the average for the 52nd week of the ten years 1888–1897. They comprise one from scarlet fever (scarlatina), 2 from influenza and its complications, 4 from whooping-cough, one from diphtheria, one from enteric fever, and 2 from diarrhœa.

The weekly number of cases of scarlatina admitted to hospital, which had fallen from 16 in the week ended December 17 to 10 in the following week, further declined to 6. Ten scarlatina patients were discharged, one died, and 69 remained under treatment on Saturday, being 5 under the number in hospital at the close of the preceding week. There were also 20 convalescents at Beneavin, Glasnevin, the Convalescent Home of Cork-street Fever Hospital.

Eleven cases of enteric fever were admitted to hospital, being 2 over the admissions in the preceding week, but 6 under the number in the week ended December 17. Seven patients were discharged, and 78 remained under treatment on Saturday, being 4 over the number in hospital on that day week.

The hospital admissions for the week included, also, 5 cases of diphtheria. In the preceding week but one case of the disease had been admitted, but during the week ended December 17, 7 cases had been received. Sixteen cases of diphtheria remained under treatment in hospital on Saturday, December 31.

Thirty-four deaths from diseases of the respiratory system were registered, being 2 over the number for the preceding week, but 19 under the average for the 52nd week of the ten years 1888–1897. They comprise 22 from bronchitis, 7 from pneumonia, and 3 from pleurisy.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N., Long.* 6° 15′ *W., for the Month of December*, 1898.

Mean Height of Barometer, - - -	29·925 inches.
Maximal Height of Barometer (on 20th, 9 a.m.),	30·543 ,,
Minimal Height of Barometer (on 29th, 9 a.m.),	28·985 ,,
Mean Dry-bulb Temperature, - -	47·0°.
Mean Wet-bulb Temperature, - -	44·6°.
Mean Dew-point Temperature, - -	41·8°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·268 inch.
Mean Humidity, - - - -	82·5 per cent.
Highest Temperature in Shade (on 5th), -	58·8°.
Lowest Temperature in Shade (on 20th), -	32·1°.
Lowest Temperature on Grass (Radiation) (on 30th), - - - - -	28·4°.
Mean Amount of Cloud, - - -	59·2 per cent.
Rainfall (on 21 days), - - -	1·066 inches.
Greatest Daily Rainfall (on 26th), - -	·260 inch.
General Directions of Wind, - - -	S.W., W.

Remarks.

The closing month of 1898 was the warmest December on record for many decades. The mean temperature in Dublin was 6·3° above the average. There was scarcely a trace of frost, and snow, sleet and hail were entirely absent. Fresh to strong south-westerly and westerly winds prevailed throughout the month. The rainfall was not half the average, while the rainy days much exceeded it. The highest daily temperatures were sometimes reached at night, as is not unusual in cyclonic or south-westerly weather during the winter months.

In Dublin the arithmetical mean temperature (47·6°) was much above the average (41·3°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 47·0°. In the thirty-three years ending with 1897, December was coldest in 1878 (M. T.=32·8°), and in 1874 (M. T.=36·8°), and warmest in 1865 (M. T.=46·2°). In 1897 the M. T. was 44·9°. December, 1898, accordingly establishes a record in the matter of high mean temperature.

The mean height of the barometer was 29·925 inches, or 0·050 inch above the corrected average value for December—namely, 29·875 inches. The mercury rose to 30·543 inches at 9 a.m. of the 20th, and fell to 28·985 inches at 9 a.m. of the 29th. The observed range of atmospheric pressure was, therefore, 1·558 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 47·0°, or actually 1·4° *above* the value for November. Using the formula, *Mean Temp.=Min.* + (*Max.* — *min.* × ·52), the value was 47·7°, or 6·2° above the average mean temperature for December, calculated in the same way, in the twenty-five years, 1865–89, inclusive (41·5°). The arithmetical mean of the maximal and minimal readings was 47·6°, compared with a twenty-five years' average of 41·3°. On the 5th the thermometer in the screen rose to 58·8°—wind, S.W.; on the 20th the temperature fell to 32·1°—wind, W.N.W. The minimum on the grass was 28·4° on the 30th. There was no frost in the screen, but 6 days of frost on the grass were recorded.

The rainfall was 1·066 inches, distributed over as many as 21 days. The average rainfall for December in the twenty-five years, 1865–89, was 2·404 inches, and the average number of rainy days was 16·9. The rainfall, therefore, was much below, while the rainy days were above, the average. In 1876 the rainfall in December was very large—7·566 inches on 22 days. In 1872, 4·932 inches fell on as many as 24 days; and in 1868 (which was otherwise a fine and dry year), 4·749 inches fell on as many as 27 days. On the other hand, in 1867, only ·771 inch was measured on 13 days; in 1885, only ·742 inch on 10 days; in 1892, only ·795 inch on 10 days; and in 1871, only ·797 inch on 1 days. In 1897, 1·841 inches of rain fell on 18 days.

A lunar halo was seen on the 28th. High winds were noted on 22 days, and attained the force of a gale on five occasions—the 2nd, 10th, 12th, 27th, and 31st. The atmosphere was more or less foggy in Dublin on the 8th, 15th, and 17th. There was no snow, or sleet, or hail.

The rainfall in Dublin during 1898 amounted to 27·048 inches on 194 days, compared with 29·344 inches on 211 days in 1897, 26·901 inches on 194 days in 1896, 31·242 inches on 194 days in 1895, 29·261 inches on 209 days in 1894, only 20·493 inches on 174 days in 1893, 25·644 inches on 196 days in 1892, 27·820 inches on 184 days in 1891, 27·562 inches on 200 days in 1890, 27·272 inches on 193 days in 1889, 28·679 inches on 190 days in 1888, 16·601 inches on 160 days in 1887, and a twenty-five years' average of 27·696 inches on 194·3 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in December, 1898, was 1·760 inches, distributed over 15 days. Of this quantity ·540 inch fell on the 26th. From January 1st to December 31st, 1898, rain fell at Knockdolian on 171 days, to the total amount of 30·546 inches. The corresponding figures for 1893 were 22·526 inches on 170 days; for 1894, 38·776 inches on 184 days; for 1895, 35·135 inches on 174 days; for 1896, 36·102 inches on 169 days, and for 1897, 42·885 inches on 210 days.

Mr. Robert O'Brien Furlong, M.A., writes:—

The rainfall at Cloneevin, Killiney, in December, 1898, was 1·20 inches on 15 days. The maximal fall in 24 hours was ·35 inch on the 30th. The average December rainfall of the twelve years 1885–96 was 2·480 inches on 17·3 days. The total rainfall for 1898 was 27·97 inches, being in excess of the average of the eleven years 1885–95—viz., 26·58 inches. Rain measuring ·01 inch and upwards fell on 188 days, the average of 11 years being 179.

At the National Hospital for Consumption, Newcastle, Co. Wicklow, rain fell during December on 17 days to the amount of 1·940 inches, ·611 inch being measured on the 26th. At this Station of the Second Order, the highest temperature in the shade was 58·0° on the 17th, the lowest was 31·9° on the 30th. The rainfall for the year 1898 was 33·137 inches on 174 days, compared with 40·193 inches on 194 days in 1897.

RAINFALL IN 1898.

At 40 *Fitzwilliam-square, West, Dublin.*

***Rain** Gauge:—Diameter of funnel,* 8 *in. Height of top—Above ground,* 1 *ft.* 4 *in.; above sea level,* 50 *ft.*

Month	Total Depth	Greatest Fall in 24 Hours		Number of Days on which ·01 or more fell
	Inches	Depth	Date	
January,	1·786	·498	2nd	14
February,	1·743	·576	17th	18
March	1·041	·231	27th	16
April,	2·666	·956	30th	16
May,	3·332	·669	2nd	20
June,	1·547	·429	5th	14
July,	·945	·342	22nd	8
August,	3·456	·991	25th	18
September,	1·452	·523	8th	13
October,	3·579	·808	17th	19
November,	4·435	1·732	23rd	17
December,	1·066	·260	26th	21
Total,	27·048	—	—	194

The rainfall was ·648 inch in defect of the average annual measurement of the twenty-five years, 1865–89, inclusive—viz., 27·696 inches.

It is to be remembered that the rainfall in 1887 was very exceptionally small—16·601 inches, the only approach to this measurement in Dublin being in 1870, when only 20·859 inches fell—in 1884, when the measurement was 20·467 inches, and in 1893 with its rainfall of 20·493 inches. In seven of the twenty-five years in question the rainfall was less than 26 inches.

The scanty rainfall in 1887 was in marked contrast to the abundant downpour in 1886, when 32·966 inches—or as nearly as possible double the fall of 1887—fell on 220 days. Only twice since these records commenced has the rainfall in Dublin exceeded that of 1886—namely, in 1872, when 35·566 inches fell on 238 days, and in 1880, when 34·512 inches were measured on, however, only 188 days.

In 1898 there were 194 rainy days, or days upon which not less than ·005 inch of rain (five-thousandths of an inch) was measured. This was equal to the average number of rainy days, which was 194·3 in the twenty-five years, 1865–89, inclusive. In 1868 and 1887—the warm, dry years of recent times—the rainy days were only 160, and in 1870 they were only 145.

The rainfall in 24 hours, from 9 a.m. to 9 a.m., exceeded one inch only once in 1898—namely, on November 23rd, when 1·732 inches were measured. In 1892 the daily rainfall twice exceeded 1 inch—viz., May 28th (2·056 inches) and August 16th (1·310 inches). On no occasion in 1893 did one inch of rain fall on a given day in Dublin. In 1894 falls of upwards of an inch of rain in 24 hours were recorded on four occasions—viz., May 15th (1·330 inches); July 24th (1·560 inches); August 25th (1·369 inches); and October 23rd (1·042 inches). In 1895, 1·802 inches fell on January 12th; 1·014 inches on July 24th; and 1·256 inches on July 25th. In 1896, 1·563 inches fell on July 8th · 2·020 inches on July 24th; and 1·388 inches on December 8th. In 1897, 1·166 inches fell on September 1st.

Included in the 194 rainy days in 1898 are 13 on which snow or sleet fell, and 20 on which there was hail. In March hail was observed on 8 days, in April on one day, in May on 5 days, in June on 2 days, and in November on 4 days. Snow or sleet fell on 9 days in March, and on 4 days in November. Thunderstorms occurred once in May, June, and November. Thunder alone also occurred once in June, July, and August. Lightning was also seen on three occasions in August, once in September and in October, and three times in November.

The rainfall in the first six months was 12·115 inches on 98 days. The rainfall exceeded 3 inches in May (3·332), August (3·456), October (3·579), and November (4·435). In July it was only ·945 inch on 8 days.

The rainfall was distributed as follows:—4·570 inches fell on 48 days in the first quarter, 7·545 inches on 50 days in the second, 5·853 inches on 39 days in the third, 9·080 inches on 57 days in the fourth and last quarter.

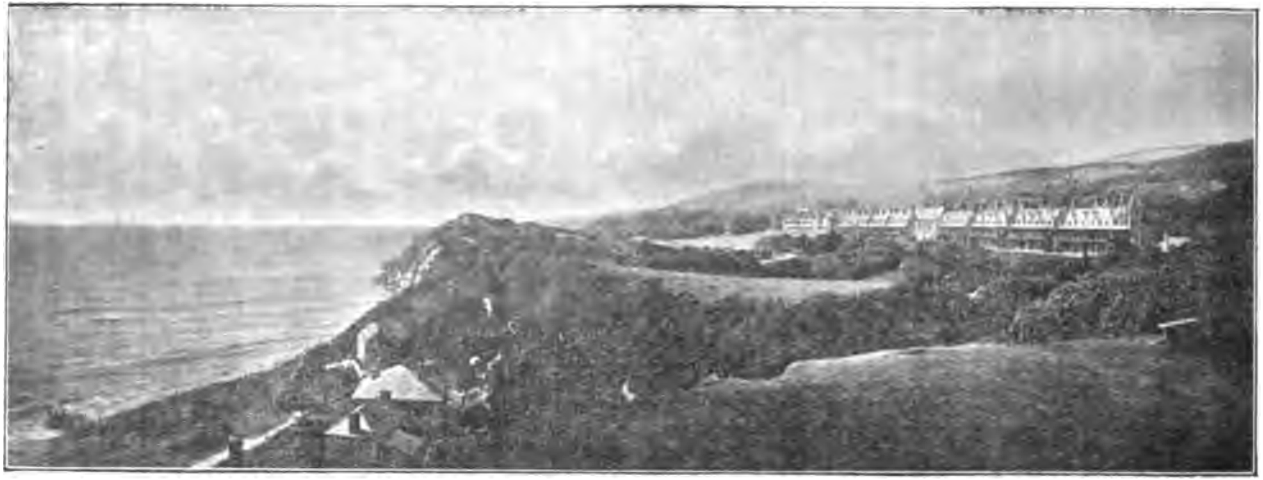
Brilliant aurora borealis was observed on March 15th and September 9th. More or less fog prevailed on 50 occasions—8 in January, 3 in February, 5 in March, 5 in April, 1 in May and in June, 2 in July, 4 in August, 3 in September, 8 in October, 7 in November, and 3 in December. High winds were noted on 131 days—8 in January, 18 in February, 11 in March, 8 in April, 9 in May, 8 in June, 9 in July, 12 in August, 9 in September, 10 in October, 7 in November, and 22 in December. The high winds amounted to gales (force 7 or upwards according to the Beaufort scale) on 30 occasions—4 in January, 5 in February, 2 in March, 2 in April, 1 in July, 4 in August, 3 in September, 2 in October, 2 in November, and 5 in December.

Abstract of Meteorological Observations taken at Dublin (40 Fitzwilliam-square, West) during the Year 1898.

MONTH	Abs. Max.	Date	Abs. Min.	Date	Mean Daily Max.	Mean Daily Min	Rainfall	Rainy Days	Mean Height of Barometer	Highest Pressure	Date	Lowest Pressure	Date	Prevalent Winds
	°		°		°	°	"		"	"		"		
January -	60·8	30th	31·9	1st	51·6	43·9	1·786	14	30·202	30·589	23rd	29·334	1st	S.W., W., S.
February -	59·0	1st	28·1	24th	48·5	37·3	1·743	18	29·926	30·289	11th	29·070	21st	W., N.W.
March - -	59·3	18th	30·8	5th	48·3	37·1	1·041	16	29·969	30·339	25th	29·428	29th	W., N.E., N.W.
April - -	64·7	7th	33·4	5th	56·3	43·1	2·666	16	29·828	30·197	24th	29·220	30th	W., S.W., S.
May - -	63·7	8th & 25th	36·0	16th	57·3	45·1	3·332	20	29·854	30·316	6th	29·106	3rd	N.W., W., N., N.E.
June -	74·9	17th	41·8	2nd	64·6	51·4	1·547	14	29·973	30·357	14th	29·330	25th	S.W., N.W., W.
July - -	75·2	11th	44·9	4th	68·0	54·1	·945	8	30·145	30·445	11th	29·661	22nd	N.W., W.
August - -	75·4	5th	47·2	9th	67·8	54·9	3·456	18	29·964	30·308	31st	29·531	5th	W., N.W., S.S.W.
September -	77·8	6th	43·0	25th	67·0	53·3	1·452	13	30·036	30·406	3rd	29·416	29th	W., S.E., S.W.
October - -	64·8	3rd	40·0	12th	57·4	48·2	3·579	19	29·774	30·365	4th	28·904	17th	S.E., W., E.
November -	62·7	2nd	29·0	22nd	51·5	40·9	4·435	17	29·789	30·312	18th	28·761	25th	S.W., W.
December -	58·8	5th	32·1	20th	52·1	43·0	1·066	21	29·925	30·543	20th	28·985	29th	S.W., W.
Extremes, Totals, and Means	° 77·8	Sept. 6th	° 28·1	Feb. 24th	° 51·5	° 46·0	" 27·048	Days 194	" 29·949	" 30·589	Jan. 23rd	" 28·761	Nov.25th	W., S.W., N.W.
					51·8°									

JOHN WILLIAM MOORE, B.A., M.D., Univ., Dubl.; P.R.C.P.I.;
F. R. Met. Soc.

January 2, 1899.



ROYAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST,

On the Separate System,

VENTNOR, ISLE OF WIGHT.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION, VENTNOR, ISLE OF WIGHT.

THE Board of Management of the Royal National Hospital for Consumption, Ventnor, have kindly forwarded the following description of the Institution:—The open air treatment is carried out, as far as is practicable, at Ventnor. The principle of exposing the patients, as much as possible, to the influence of fresh air and sunlight was recognised from its inception by the founder of the Hospital, Dr. A. H. Hassell, thirty years ago, and its evolution has been the careful study of the administration in each successive addition to the number of its pavilions or blocks. The site selected is a broad, elevated, but sheltered terrace facing due south with an uninterrupted view of the sea. The pavilions, built in succession, will shortly number eleven. They are separated an average distance of 18 feet, permitting a free current of air between them. They are so constructed that a straight corridor is carried on each floor from east to west, ending in large windows almost equal to the sectional area, while two other corridors cross from north to south giving free ventilation in every direction. The patients' sitting-rooms and bedrooms all face the south, and open on a broad verandah by French windows; the doors opposite open on to the corridors. The whole of the patients' rooms open on verandahs wide enough for their chairs and couches being brought into them through the folding French windows. Between some of the blocks shelters, in line with the verandahs, have been constructed, and all the blocks will shortly be so connected so as to facilitate the outdoor life of the patients. Numerous sheltered seats are available in the undulating wooded grounds sloping between the Hospital and the sea—nearly 20 acres in extent—and the nurses have standing instructions that the patients are to be at all times in the verandahs or open air according to the weather. At night, and when the rooms are occupied, by means of elaborate steam-driven machinery, a constant current of air, fresh from the outside, is drawn through each apartment supplying 5,000 cubic feet per hour per patient. This air is tempered in cold weather by passing through a steam-heated coil opposite the external aperture. This current is kept up, advisedly, even when the windows are open, in order that there may be no stagnant air and the extraction of the exhaust air be maintained. The necessity of this is apparent when we consider that the respiration of consumptive patients contaminates the air and renders it much more offensive than in other persons. In each room is displayed a printed card explaining in simple language the nature of pulmonary consumption, the conditions under which it is spread by the infectious element in the expectoration, and the precautions therefore necessary to be taken by patients in connection with its disposal. It must always be kept in mind that the success of all measures, taken with a view to prevent the spread of tuberculosis, must ultimately depend on the educated and intelligent co-operation of those afflicted.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

NEW PHARMACEUTICAL PRODUCTS.

MESSRS. FRIEDRICH BAYER & Co., of Elberfeld, Prussia, have submitted to us samples of three new therapeutical agents which are coming into very general use both abroad and at home, particularly in the treatment of pulmonary consumption:—

1. *Heroïn* is the di-acetic ester of morphin. It forms a white crystalline powder, with a melting point of 171° to 172° C. It is almost insoluble in water, but dissolves easily in alcohol. Contrasted with morphin, heroïn does not cause constipation, and its dose is much smaller. The sedative effect of the drug on the air passages is observed almost at once. It is best administered as a powder, mixed with sugar. If preferred, it may be given dissolved in brandy, or in water acidulated with a few drops of acetic acid. The dose varies from ·005 to ·010 gramme three times a day.

2. *Duotal* is a carbonate of guaiacol ether (guaiacoli carbonas purissimus). Its formula is $(C_6H_4OCH_3)\ 2CO_3$. It forms a white crystalline powder, inodorous, tasteless, and insoluble in water. In the digestive organs it is broken up into guaiacol and carbonic dioxide. In phthisis, doses of 8 grains daily, increased to 96 grains by degrees, are followed by increased appetite and assimilation, decreased cough and expectoration, disappearance of fever and of night sweating.

3. *Creosotal* (creosoti carbonas purissimus) is a mixture of the phenol carbonates of creosote, and forms a transparent, viscous, yellow, honey-like, and perfectly clear liquid of a slightly bitter taste, and nearly inodorous. It is not soluble in water, but can be mixed with ether and alcohol, and is soluble in fatty oils. Creosotal, in cases of tuberculosis, is administered in doses of half a drachm, which may be increased up to 5 drachms, taken in wine, brandy, or cod-liver oil.

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MARCH 1, 1899.

PART I.

ORIGINAL COMMUNICATIONS.

Art. IX.—*The Prevalence of Tuberculosis in Ireland, and the Measures necessary for its control.*[a] By T. W. Grimshaw, C.B., M.A., M.D.; Ex-President Royal College of Physicians of Ireland; Registrar-General for Ireland.

So long ago as the 16th of April, 1885, in a paper entitled "Observations on the Relative Prevalence of Disease and Relative Death-rates in Town and Country Districts in Ireland," I called the attention of this Section of the Academy to the prevalence of phthisis in Ireland, and to its especial prevalence in Irish town districts. I do not propose here to repeat or bring up to date the considerable array of figures which I laid before the Academy on that occasion, but I wish to refer to their main result as it then stood, as shown by the following table for the ten years, 1871–80:—

Localities	Total Deaths		Principal Zymotics		Phthisis		Inflammatory Diseases of Respiratory Organs	
	No.	Rate per 1,000	No.	Rate per 1,000	No.	Rate per 1,000	No.	Rate per 1,000
Civic Districts	332,526	22·5	47,656	3·2	40,840	2·8	56,724	3·8
Rural Districts	634,219	16·6	67,391	1·8	62,688	1·6	86,267	2·3
Total Ireland	966,745	18·3	115,047	2·2	103,528	2·0	142,991	2·7

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[a] Read before the Section of State Medicine of the Royal Academy of Medicine in Ireland, February 17, 1899.

Remarking upon this table, I said:—

"It will be observed that these three groups comprise more than one-third of the mortality from all causes in Ireland, and that in each group the death-rate in towns far exceeds that of the average for Ireland, and of course still further that of the country districts. A further analysis shows that in the case of the principal zymotics the death-rate in towns exceeds that of the average of Ireland from the same causes by 10·6 per 10,000; in the case of phthisis, by 8·1; and in cases of diseases of the respiratory organs, by 11·4. The excess of mortality similarly taken in civic as compared with rural populations is—principal zymotics, 14·5; phthisis, 11·3; and diseases of the respiratory organs, 15·8."

I also pointed out the difficulty of distinguishing, in statistical statements of causes of death, between phthisis and other forms of lung disease, many of the latter being mainly due to the previous affection of the respiratory organs by tubercular disease.

Again, on the 19th of May, 1887, I brought under the notice of this Section a paper "On the Prevalence and Distribution of Phthisis and other Forms of Disease of the Respiratory Organs in Ireland." In the course of my remarks on that occasion I stated that "the total number of deaths registered in Ireland during the decade 1871-80 was 966,745. Of these, phthisis caused 103,528, or more than one-tenth. Other forms of disease of the respiratory organs, 142,991, or over one-seventh. The two groups taken together caused 246,519 deaths, or more than one-fourth of all the mortality of Ireland. It is, therefore, quite clear that in dealing with questions of the distribution and prevention of disease in Ireland, by far the most important element to be taken into account is that of lung disease."

At the Congress of the Sanitary Institute of Great Britain, held in Dublin in 1884 under the Presidency of the eminent sanitarian, Sir Robert Rawlinson, K.C.B., before either of the papers I have referred to was brought under the notice of this Academy, I had the honour of being appointed President of the Section of the Congress for

"Sanitary Science and Preventive Medicine." On that occasion I chose as the title of my Address "The Statistical Measures of the Health of Communities," and said that—

"In estimating the value of death-rates as a test of healthiness, there are some elements to which too much importance appears to have been attached. It is too much the custom to attach exaggerated importance to the proportion of deaths from 'zymotic' diseases of an infectious or catching nature as evidence of unhealthiness. I admit that the prevalence of infectious diseases and their fatality is a very important element in estimating the health of a community; nevertheless, if the death-rate from any particular group of diseases were taken as a single test of unhealthiness, I should choose the constitutional, not the zymotic group, as the most reliable."

It will be observed that I on that occasion laid much greater stress on the prevalence of constitutional diseases as a test of the health of a community than on the prevalence of zymotic diseases, and of the former class of disease tuberculosis constitutes the great bulk.

Again, at the Congress of the Royal Sanitary Institute, held in Dublin in the autumn of last year, I had the honour of acting as President in the Section of "Preventive Medicine and Vital Statistics," and in my Address (entitled "The Relation between Preventive Medicine and Vital Statistics") I again called attention to the destructiveness of phthisis and other forms of tuberculosis in the following observations:—

"How is the death-toll levied? By what instrument does the hand of Death inflict his wounds? By disease and accident. But by what disease is the death-toll raised to its highest? Many would answer, 'By epidemic and infectious diseases (zymotic as they are usually called), of course.' But this on inquiry is found not to be so. Ten diseases belonging to the class of zymotic diseases caused in the decade 1881-1890 only 70,717 deaths out of 883,156 in the whole of Ireland. This is about 8 per cent. out of the whole. Inflammatory diseases of the respiratory organs (bronchitis, pneumonia, &c.) caused in the same period 153,279 deaths, or more than double the number from the zymotic diseases alluded to. Consumption, or tuberculosis of the lungs, alone caused 103,314, or 11·7 per cent. of all the deaths, and if the other forms of tubercular disease be added the death-toll from tuberculosis will be so far raised as to make it as a single disease the most destructive of all maladies prevailing in Ireland, and exceeding in its destructiveness all the so-called infectious diseases put together. This is also generally true throughout Europe. There are other groups of diseases as destructive as the zymotic group, besides those which attack the respiratory system, but of these it is unnecessary for me to give details. The disease, however, as a malady which is the most destructive is tuberculosis. This has now been distinctly ascertained to be of an infectious character. Many of its modes of propagation are well known, and it is the one above all others to be dealt with by sanitarians. It used to be the custom to speak of the infective fevers as *par excellence* the preventable diseases, and to these the sanitarian has mainly directed his attention. This attention should not in the least be relaxed, and the diminution in the death-rate from infectious fevers is in itself a demonstration of what sanitarians can accomplish. It is now their duty to follow up tuberculosis, and it is equally certain the result will repay the effort."

In the "Manual of Public Health for Ireland," published in 1875, of which I was one of the joint authors with Dr. Emerson Reynolds (now Professor of Chemistry in the University of Dublin), Mr. R. O'Brien Furlong (now Chairman of the Board of the National Hospital for Consumption), and Dr. J. W. Moore (the present President of the Royal College of Physicians, Ireland), in a chapter headed "Diseases usually called Constitutional which are caused or promoted by general Unhealthy Conditions;" in discussing the question of "Scrofulous Affections," we state—

"It would not be advisable, in the present state of our pathological knowledge, to treat scrofula and tuberculosis as synonymous terms; but even admitting that in many cases the diseases may be far removed from one another, yet, from a sanitary point of view, they must be looked upon as having a close relationship.

"*Phthisis.*—By far the most important disease of this class is phthisis or pulmonary consumption, which is much more under the control of sanitary measures than is generally believed by the public."

We then point to remedies, and insist on healthy surroundings, dry sites for dwelling-places, &c., and refer to the works of Dr. Henry MacCormac of Belfast (father of Sir William MacCormac, Bart., K.C.V.O., the eminent President of the Royal College of Surgeons of England), and his persistent advocacy of the free use of fresh air as the most important element in the prevention and cure of consumption—a disease which Dr. MacCormac attributed to the inhaling of air which had already been used for human respiration. Dr. MacCormac wrote before the days of Koch's great discovery. Our "Manual of Public Health" was written when the tubercular bacillus was unknown. We were not alone in insisting on the great importance of the prevention of phthisis, and in advocating the adoption of many of the means ascertained to tend to that end. The public, however, were disinclined to listen, and indulged in the fatalistic view that consumption was a hereditary, incurable and non-preventable disease.

I have thus for over twenty years been calling attention to this subject. I have also in my official reports, especially in my decennial summaries of marriages, births and deaths for the decades 1871-80 and 1881-90, called attention to the same subject, but I am sorry to say with but little effect. I know that in this matter I have the full support of all my professional brethren throughout Ireland. I know that they all agree with me, and admit the terrible gravity of the case I have put before them; but even if they had all spoken out their minds I am afraid they would have made but little impression on the public. I believe, however, the public are now beginning to see the gravity of the danger and to appreciate—at present I admit but slightly—the enormous loss and misery inflicted upon the community by tuberculosis.

The Reports of the Royal Commissions on Tuberculosis which have sat during the past few years have done much to form an educated public opinion on this subject.

The Royal Commission of 1890, which was renewed in 1894 and reported in 1895, was appointed to inquire into

"The Effect of Food derived from Tuberculous Animals on Human Health."

A further Royal Commission issued in 1896, which reported in 1898, was appointed to inquire into administrative procedures for controlling danger to man through the use as food of the meat and milk of tuberculous animals.

The Reports of these two Commissions prove conclusively the dangers which exist of communicating tubercle from the lower animals to man through the medium of meat and milk, and suggest many remedial measures.

The inquiries made by the Royal Commission of 1890-94 have brought prominently before the public many facts which were previously only known to scientists, medical men, and veterinaries. The public are now becoming alive to the fact that much of the tubercular disease—especially tabes mesenterica and tubercular meningitis, which mainly affect children—must be to a great extent due to the tubercular bacillus introduced through the milk which forms so large a portion of the food of our little ones. In the Report of the Royal Commission of 1890-94, Dr. Sidney Martin (who was specially employed with other experts to make scientific investigations for the Commission) states that "the milk of cows with tuberculosis of the udder possesses a virulence which can only be described as extraordinary. All the animals inoculated showed tuberculosis in its most rapid form."

Regarding the presence of tuberculosis in the organs of slaughtered animals the following is an extract from the Report of the Royal Commission of 1890-94:—

"Thus, from the excellent records of the Copenhagen slaughter-houses, the following totals for the four years, 1890-3 inclusive, have been derived:—

"Of 132,294 oxen and cows, 23,305 showed evidence of tubercle.

"Of 8,292 swine, 1,272 showed evidences of tubercle.

"Of 185,765 calves, 369 showed evidences of tubercle.

"Of 337,014 sheep, one only showed evidences of tubercle.

"And the animals range themselves, at the time they are presented to the butcher, in the above order according to the frequency of tuberculosis in each, the percentage of tuberculous animals being here 17·7 for oxen and cows, 15·3 for swine, 0·2 for calves, and 0·0003 only among sheep.

"From the Berlin slaughter-houses, the following is the report for the year 1892-3:—

"Of 142,874 oxen and cows, 21,603 showed evidences of tuberculosis, and 1,609 were condemned on this account.

"Of 518,073 swine, 7,055 showed evidences of tuberculosis, and 1,191 were condemned on this account.

"Of 108,348 calves, 125 showed evidences of tuberculosis, and 62 were condemned on this account.

"Of 355,949 sheep, 15 showed evidences of tuberculosis, and 12 were condemned on this account.

"The percentages of tuberculous animals, therefore, were, at Berlin slaughter-houses, 15·1 for oxen and cows, 1·55 for swine, 0·11 for calves, and 0·004 only for sheep; and the percentages of the several kinds of animals condemned on account of tuberculosis were—for cows and oxen 1·26; for swine, 0·23; for calves, 0·06; and for sheep, 0·003.

"There do not exist for the United Kingdom any records with which these can be compared. At Copenhagen and Berlin all the meat furnished to the towns is submitted to the inspection of experts. But we have reason to think that the facts about tuberculous animals would exhibit a broad resemblance to the foregoing, if such records could be obtained; not more different in degree, that is, than the difference seen between the Copenhagen and Berlin records, or than would be explained by variations in the practice of dealing with food-animals in one and another country. Such few data as are to be had for the United Kingdom confirm this view. Three hundred milch cows had to be slaughtered in Edinburgh in 1890 on account of the appearance of epidemic pleuro-pneumonia there, and their carcases were examined as to the presence or absence of tuberculous matter in them. Of the three hundred, 120, or 40 per cent., were found to be tuberculous, the percentage varying between 12 and 83, according as they came from one or another cowhouse. In Edinburgh, again, out of 27,769 cattle brought for slaughter to the public abattoir in 1890, 179, or 0·65 per cent., were condemned as being tuberculous, this percentage having risen from 0·16 in 1887, when the system of examining for tubercle was begun there. Five pigs were condemned in 1890 out of 4,973, and no calves out of 5,160; no record is given about sheep.[a]"

I need scarcely say that the thoughtful members of the public who became acquainted with these facts through the public press—for few read blue books—began to take alarm.

About this time—in August, 1896—Dr. J. W. Moore, the present President of the Royal College of Physicians of Ireland, and of the Medical Section of the Academy, brought the subject of tuberculosis under the notice of the meeting of the British Medical Association at Carlisle (mainly from the human point of view) in an able paper read before the Medical Section at that meeting. Other important papers bearing upon the communication of the disease through food and on the methods of prevention were brought under the notice of the Preventive Medicine Section of the meeting.

After the reading of Dr. Moore's paper, I had the honour of proposing the following resolution, which was seconded by Sir William Gairdner:—

"1. That provision should be made at the public expense for bacteriological laboratories by all Sanitary Authorities, where the sputum of patients suspected to be suffering from tuberculosis disease may be examined and reported upon; and

"2. That on the discovery of pulmonary phthisis in any individual of the poorer classes, public provision should be made for the treatment of such case in a public institution provided for the purpose at the public expense, or by voluntary contributions."

This resolution was unanimously adopted by the Association at its General Meeting.

After some delay the resolution was dealt with by a Committee of the Association, whose Report will be found in the pages of the *British Medical Journal* for the 28th of January, 1899, and thus the subject has been placed before the Medical Profession of the United Kingdom in an authoritative manner.

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[a] The total number of the animals *observed to be tuberculous* is not recorded. The above figures from the Edinburgh abattoir relate to animals *condemned* on that account.

While this matter was under the consideration of the British Medical Association, an important step was taken by the Presidents of the Royal Colleges in London, in conjunction with Sir William Broadbent. These eminent medical men inaugurated a movement for providing a National Society for the Prevention of Phthisis and other forms of Tuberculosis, and wrote a letter to the newspapers which appeared in almost every daily journal in the United Kingdom, calling for public support for the Society they had established, and announcing that His Royal Highness the Prince of Wales approved the movement.

His Royal Highness further showed his appreciation of the movement by inviting a number of persons interested in the subject to meet him with the present and late Prime Ministers at Marlborough House, to further discuss the question and place the Society on a permanent footing. Ireland was represented at that meeting by the President of the Royal College of Physicians, Mr. Furlong, Chairman of the Board of the National Hospital for Consumption, and myself.

The meeting was held on the 20th of December of last year.

The question of the prevention of tuberculosis has thus been placed on a most extended and popular basis, and our profession have at last an opportunity of impressing our views on the general public with some prospect of success.

I shall now proceed to point out the amount of injury this disease inflicts on the community, and the measures which may be taken for the mitigation of the evil.

It is estimated that about 1,000,000 deaths are annually caused by tuberculosis in Europe.

If we take the three principal forms of tuberculosis, viz.:—tabes mesenterica, tubercular meningitis, and phthisis pulmonalis, we find that in the United Kingdom the average annual deaths for the five years 1892–96 were—tabes mesenterica 8,659, tubercular meningitis 8,707, phthisis 59,015, making a total of 76,381, which is equivalent to 10·8 per cent. of the deaths from all causes. In this calculation other forms of tuberculosis are excluded, such as tubercular diseases of glands, joints, bones, scrofulous abscess, &c.; this latter group is not so fatal as the principal forms, but in numberless cases where not fatal the disease maims for life. Taking Ireland separately as more nearly concerning us, for the five years already referred to, we find that the average deaths were, from tabes mesenterica 954, tubercular meningitis 928, phthisis 9,672, making a total of 11,554, and constituting 13·9 per cent. of all the deaths in Ireland.

For our own Dublin District the corresponding figures were, tabes mesenterica 229, tubercular meningitis 161, phthisis 1,214, making a total of 1,604, which is equivalent to no less than 17·2 per cent. of all the deaths in Dublin and its suburbs.

It is interesting to contrast the number of deaths from all forms of tubercular disease with the number from the principal zymotic or acute specific diseases.

The following statement shows for each of the three portions of the United Kingdom, and for the whole area, the annual mortality from tuberculosis and from acute specific diseases per million living, at all ages, and in each of the first three quinquennial periods of life, during the decennium 1881-90:—

—		Ages			
		0–5	5–10	10–15	All Ages
(*a*) Acute Specific Diseases	England and Wales ...	9,130	1,839	541	1,667
	Ireland	5,595	1,444	588	1,131
	Scotland	9,764	1,858	591	1,774
	United Kingdom ...	8,795	1,788	552	1,606
(*b*) Tuberculosis	England and Wales ...	4,499	844	827	2,420
	Ireland	3,326	1,184	1,491	2,665
	Scotland	4,368	1,520	1,506	2,743
	United Kingdom ...	4,351	962	995	2,488

Evidently it is more important to bring the tubercular class of disease under control than the zymotic.

It will be observed in the foregoing statement that, in Ireland, deaths from tubercular diseases more than double the number caused by those diseases of the zymotic form, to the prevention of which sanitary measures have been mainly directed.

Dr. J. W. Moore has shown in his Carlisle paper that during many years past tubercular diseases—especially those of the more fatal forms—have shown a tendency to diminish; this diminution has been best marked in England, less marked in Scotland, and scarcely, if at all, in Ireland. No doubt this decrease is mainly due to improved general sanitation, not to special efforts to control the disease itself.

I regret to have to emphasise the very unwelcome fact that phthisis has shown a tendency to increase in Ireland.

In the decade 1871-80, phthisis caused 10·7 per cent. of all the deaths in Ireland, and the rate of mortality was 19·6 per 10,000 living. In the next decade, the percentage rose to 11·7, and the rate to 20·9 per 10,000. Taking an average of 25 years we find, according to the returns issued by my office, that the deaths caused by tabes mesenterica, tubercular meningitis and phthisis pulmonalis, amounted to an annual average of 13,304, out of an average total number of deaths from all causes for Ireland of 91,067; thus the deaths from these three forms of tubercular disease caused 14·6 per cent. of all the deaths in Ireland during 25 years.

In the paper to which I have already referred, regarding the contrast between town and country districts in Ireland, I emphasised the fact that the mortality from phthisis was much greater in those districts containing towns than in purely rural districts.

In my Address to the Sanitary Congress in Dublin, I mentioned, among other matters, that, roughly, the eight Western Counties of Ireland might (as they contain few large towns) be taken as healthy death-rate districts, the remaining districts being taken as less healthy death-rate districts. The death-rate for the former was only 14, that of the latter 19·1 per 1,000 for the decade 1881-90.

If we take all the districts containing towns with populations of 10,000 and upwards, and those not containing any considerable town populations, we find the respective death-rates for the same decade were—for the former 22·3, for the latter 16·0, as compared with a rate for Ireland of 17·0.

If we consider the death-rates of Irish towns as compared with those of towns in England, we find that they are inordinately high.

Now, we know that this high death-rate is not caused by infantile mortality, nor is it among the very old, therefore we must conclude that it is at what ought to be the healthy ages that the excess is to be found.

In order to test this question it first became necessary to analyse the age population of our towns, and compare it with the rural; the result is shown in the following table.

From this table it will be seen that the proportion of the population under 5 years of age is in excess in town as compared with country districts; between the ages 10 to 15 it is less in town than in country; from the ages 20 to 45—that is, during the period of active working life—the proportion is greater in town than in country; beyond the age of 45—that is, after middle life—the proportion is greater in the country than in the town districts.

Phthisis is particularly prevalent among young adults, and it has been ascertained that about one-half of all the deaths in the United Kingdom between the ages of 25 and 35 are caused by phthisis.

In Ireland we find that for the decade 1881-90, of 55,912 deaths between these ages, 25,495, or 45·6 per cent., were caused by phthisis. Tabes mesenterica and tubercular meningitis are mainly fatal among children under 5 years of age. The former caused 8,236 deaths of children under 5 years of age, the latter 5,596, making 13,832 out of a total of 188,332, or 7·3 per cent. of all deaths at that age, during the decade in Ireland. We thus find that about 1 in 13 of all the deaths of young children in Ireland are caused by these two forms of tuberculosis. It must be remembered that the less-defined forms of tuberculosis, commonly denominated scrofula, are omitted from these calculations. It is not, however, surprising that when we find that a considerable number of those between the ages of 25 and 35, who must constitute a large number of the parents of these children, are affected by phthisis, that many of their offspring should suffer from other forms of tuberculosis, besides the risks the children run from that virulent vehicle of tuberculosis, infected milk.

IRELAND.—Number of Persons at each Age Period in every 100 at all Ages.—Census of 1891.

—	Under 1 year	1 and under 5	5 and under 10	10 and under 15	15 and under 20	20 and under 25	25 and under 30	30 and under 35	35 and under 40	40 and under 45	45 and under 50	50 and under 55	55 and under 60	60 and under 65	65 and under 70	70 and under 75	75 and under 80	80 and under 85	85 and under 90	90 and under 95	95 and under 100	100 and upwards	Ages not specified
Rate per Cent. for—																							
6 Principal Towns	2·4	8·6	10·1	9·8	10·8	11·1	9·1	7·5	5·9	6·1	4·6	4·8	2·6	2·9	1·4	1·3	0·5	0·3	0·1	0·0	0·0	0·0	0·1
23 Towns -	2·4	8·6	10·2	10·0	11·0	11·0	8·8	7·3	5·8	6·0	4·6	4·8	2·6	3·0	1·4	1·3	0·6	0·4	0·1	0·0	0·0	0·0	0·1
ALL IRELAND -	1·9	8·1	10·8	11·7	11·7	9·5	6·8	5·9	4·9	5·5	4·3	5·4	3·9	4·1	1·9	2·2	1·0	0·9	0·3	0·1	0·0	0·0	0·0
The 17 Larger Towns	2·2	8·6	10·7	10·7	11·9	10·5	7·6	6·4	5·4	5·6	4·3	5·0	2·8	3·6	1·7	1·6	0·7	0·5	0·1	0·1	0·0	0·0	0·0
Rural Districts* -	1·8	7·9	11·0	12·1	11·9	9·1	6·3	5·6	4·6	5·4	4·3	5·6	3·1	4·3	2·0	2·4	1·1	1·1	0·3	0·1	0·0	0·0	0·0

* Ireland, exclusive of 23 Towns.

I shall now proceed to analyse the statistics of deaths from tuberculosis in Ireland during recent years, distinguishing the deaths in those Registrars' Districts containing towns with a population of 10,000 and upwards from deaths in rural districts, and also dealing with the mortality from tuberculosis at the principal age periods. In order to eliminate disturbing causes I have selected the statistics of the last three years for which detailed statistics are available—viz., 1895–6–7. I include districts with towns having a less population than 10,000, with the country districts, because in many towns with comparatively small populations there are situated Union Workhouses which contain many persons not belonging to the Registrar's District whose deaths would tend materially to increase the death-rates of those towns. This presence of workhouses does not appreciably affect the three principal town districts—viz., Dublin (including its suburban townships), Belfast and Cork—nor does it materially affect other districts including towns with populations of 20,000 and upwards. I have set out in the accompanying table all the main features regarding general death-rates, death-rates at the principal age periods from tuberculosis, and the proportion of deaths from tuberculosis to deaths from all causes. I have purposely avoided going into too minute details in this table, in order that the paper may not be incumbered with statistics. The rates are based on the Census population of 1891. The facts shown in this table are sufficiently serious and certainly call for the most earnest attention of all who are interested in the prevention of disease.

An examination of the table shows that during the three years dealt with—1895, 1896 and 1897—the average annual death-rate for Ireland was 17·3 per 1,000, the rate for the town districts (that is towns with a population of 10,000 and upwards) was 25·4, and for the rest of Ireland 15·2.

[illegible] *from (1) All Causes, (2) Tabes Mesenterica, Tubercular Meningitis, Scrofula, and Tuberculosis ill-defined, (3) Phthisis; at All Ages and at certain Selected Ages.*

Localities	Population in 1891	AVERAGE ANNUAL RESULTS FOR THE THREE YEARS 1895, 1896, AND 1897													
		Death-rate per 1,000 of Population at all ages yielded by deaths from			Rate per 1,000 of Population at same age represented by					Percentage of the Deaths from All Causes at the same age caused by Phthisis					
					Deaths under 5 years of age from		Deaths at the ages 15 and under 45 from			Ages					
		All Causes	Tabes Mesenterica, Tubercular Meningitis, and Tuberculosis ill-defined	Phthisis	All Causes	Tabes Mesenterica, Tubercular Meningitis and Tuberculosis ill-defined	All Causes	Tabes Mesenterica, Tubercular Meningitis and Tuberculosis ill-defined	Phthisis	15 and under 45	15 and under 35	15 and under 25	25 and under 35	35 and under 45	All Ages
Districts containing Towns of 20,000 or more Inhabitants:—															
Dublin Registration Area -	349,594	27·2	1·8	3·3	83·3	11·0	12·4	0·5	4·6	37·5	42·8	44·6	41·4	29·0	12·0
Belfast, Nos. 1-6 & 9-11, & Castlereagh, Nos. 1 & 4	266,185	27·6	1·8	3·9	88·5	10·0	13·9	0·4	6·1	43·8	49·8	55·4	44·1	29·9	14·2
Cork—Nos. 1-9 - -	89,785	23·8	1·1	3·8	59·0	6·2	12·3	0·4	5·9	48·3	53·7	54·4	53·1	37 3	15·9
Limerick—Nos. 1-4 -	41,828	21·1	0·7	3·0	45·2	3·3	10·4	0·1	5·1	49·0	53·6	56·3	51·5	40·2	14·5
Londonderry—Nos. 1 & 2 and Glendermot -	40,090	22·5	1·6	2·5	58·1	6·6	10·5	0·8	4·2	39·6	46·6	52·5	38·5	25·5	11·3
Waterford—Nos. 1 & 2 -	28,893	22·3	1·2	3·2	51·6	6·7	10·9	0·3	5·2	48·1	57·1	58·6	55·2	25·4	14·3
Total of above -	816,375	26·2	1·6	3·5	78·3	9·4	12·6	0·4	5·3	41·8	47·7	51·4	44·3	30·3	13·3
Districts—towns of 10,000 or more inhabitants	962,513	25·4	1·5	3·3	73·5	8·7	12·2	0·4	5·1	42·0	48·0	51·9	44·2	30·1	13·2
Remainder of Ireland -	3,742,237	15·2	0·4	1·7	26·2	2·0	6·7	0·2	3·0	44·3	50·4	58·2	47 2	28·5	11·1
All Ireland -	4,704,750	17·3	0·7	2·0	36·8	3·5	7·9	0·3	3·5	43·5	49·6	52·8	46·1	29·1	11·7

For Ireland the death-rate from all tubercular diseases, exclusive of phthisis, was 0·7 per 1,000; for country districts 0·4; for town districts 1·5. or nearly four times the latter rate. For consumption alone the rates were, for Ireland 2·0; for country districts, 1·7; for town districts, 3·3 or nearly double the latter rate. Taking all forms of tubercular disease the rate for Ireland was 2·7, for country districts the rate was 2·1, for town districts 4·8, or more than double.

In the districts with the six large towns the rates were from all causes 26·2, as compared with 15·2 in country districts, from tuberculosis other than phthisis 1·6, against 0·4, or exactly four times the rate; for phthisis 3·5 against 1·7, or slightly more than double the rate; and for all forms of tuberculosis combined 5·1, against 2·1, or considerably more than double as compared with country districts.

It will be observed that by far the most important cause of death dealt with in the foregoing remarks is phthisis. This disease alone caused 11·7 per cent. of all the deaths in Ireland during the period under consideration, the percentage for the districts with towns of over 20,000 population being 13·3, for those with towns of 10,000 inhabitants and upwards 13·2, or slightly less, as compared with 11·1 per cent. for the rest of Ireland. These figures point to a conclusion which to many will be somewhat unexpected—namely, that the proportion of deaths from consumption to total deaths is very high even in the country districts of Ireland.

Of course the people in towns have to contend against many other dangers to life, which I have referred to in the papers I have already quoted. This, however, is beside the question I have at present to deal with.

If we compare the death-rates from tubercular disease in the six large town districts of Ireland as measured by the general population, we find that, as regards the mortality from the forms of tuberculosis other than phthisis, Dublin and Belfast are the same, 1·8 per 1,000; Londonderry next, 1·6; Waterford, 1·2; Cork, 1·1; and Limerick, 0·7 only. In the case of phthisis we find Belfast leads with a rate of 3·9; Cork follows with 3·8; then in order, Dublin, 3·3; Waterford, 3·2; Limerick, 3·0; Londonderry, 2·5.

(To be continued.)

ART. X.—*Mullaranny, Co. Mayo, Considered as a Winter Health-resort for Invalids.* By F. J. B. QUINLAN, M.D., F.R.C.P.I.

I HAVE always considered it a matter of regret that invalids, or those who from delicacy are unable to bear our rigorous winters, should be sent to distant health-resorts, which can be reached only by long and fatiguing journeys, and I have been for some time of opinion that the exceptionally warm and equable climate of the west coast of Ireland would afford great advantages in this respect. Last summer I visited the Island of Achill, and was walking along the Keel Strand to the Cathedral Cliffs. I found that the walk along this beautiful but, alas, deserted strand (which would make the fortune of an English watering-place) was longer than I expected, and looked about for something which might be used as a walking-stick. I saw one lying at the water's edge, and evidently just cast up by the tide. I took it up, and found that it was a piece of bamboo which had travelled in the Gulf Stream, apparently from some locality near the Gulf of Mexico, and some traces of green upon it showed that the voyage had not been a very long one. I mention this occurrence merely as an evidence of the great physical phenomenon which secures a mild and equable climate to the west coast of Ireland, and in a somewhat lesser degree to that of Scotland, by keeping their atmospheres warmed by a constantly passing stream of tropically heated water. The Island of Achill, though possessing some merits as a health-resort, has the drawback of a boggy soil, and of a good deal of rain, due to the Atlantic rain-clouds being attracted by the high mountains in or near it; but between these mountains and the high Croagh Patrick mountain chain further south lies the health-resort which I wish to describe in this paper.

The low hill and plateau of Mullaranny, in the ancient language of our native land, "the hillock of ferns" (Mullaċ na Rainneaċ), is situated on an isthmus a mile wide, which connects the mainland of the County of Mayo with the great Curraun Peninsula, and further west with the Sound and the Island of Achill. This isthmus runs from east to west, and is bounded on the north by the southern termination of Blacksod Bay, which assumes the aspect of a beautiful landlocked and Norway-like fiord; on the south the plateau is washed by the broad Atlantic and the Gulf Stream, pouring into the mouth of Clew Bay. The plateau is about a hundred feet over the sea level; it is of quartzite rock and on a gentle slope, securing a dry subsoil; it faces the south, and consequently enjoys the solar influence all the day. In front of it to the south is a beautiful velvet strand covered at half tide; but this can be crossed by a stone causeway, and the outer sea beach reached, in five minutes. On the north side of the plateau rises the "hillock of ferns," apparently about 200 feet over it, it affords great shelter, it is laid out in winding walks of easy gradient, and provided with numbers of seats commanding lovely views. The shelter of Mullaranny by the neighbouring mountains is complete, and they are near enough to shelter it, and yet far enough to draw the Atlantic rain-clouds, and discharge them without any pluvial infliction upon Mullaranny itself. The ring of shelter is thus comprised—on the north the Nephinbeg range, on the west the mountains of the Curraun Peninsula and the towering Clare Island, on the south (at a distance of nine miles across Clew Bay) the great Louisburg chain and Croagh Patrick, and on the east the high ground from Newport to Westport. With sea on both sides the air is fresh, stimulating, and abounding in ozone. Between the plateau and the sea runs the public road, which is bordered by a huge fuchsia hedge, which, when I saw it, was abundantly covered with flowers. This hedge is several hundred yards long, about twelve feet high, and four feet thick, and evidently of very ancient growth; and this immense and flourishing specimen of a rather delicate shrub would seem to be a standing testimonial, which cannot deceive, of a long succession of mild, genial winters unbroken by sudden falls of temperature. There is no surer indication of the absence of sudden falls of temperature than the flora of a neighbourhood, and an examination of it bore out the testimony of the great fuchsia hedge. Oleanders and other sub-tropical plants abounded, and the delicate maidenhair fern was growing wild in the clefts of the rocks, just as it does in the great pre-historic fortresses of Arranmore, a little further south.

I now proceed to inquire into the meteorology of the district. I regret that this useful branch of observation is not as carefully pursued in Mullaranny as it should be; still I was able to collect some reliable information. A friend in whom I have every confidence, and who has no motive in misleading, writes as follows:—

"During periods of summer heats we have fogs which during the early mornings obscure and envelop the summits of the neighbouring mountains, but as the day advances they vanish, and leave a clear atmosphere; with this exception we have clear bright skies. Our rainfall comes in heavy showers, which pass off, and leave a clear sky; the ground dries rapidly after rain" (the geological formation of the plateau and its easy slope are enough to prove this statement); "we are not troubled with drizzle or Scotch mist, and murky days are most exceptional."

I learn through Mr. Myles, C.E., Engineer to the railway, that the annual rainfall is from 40 to 60 inches, which contrasts well with many favoured English health-resorts; but experience shows that a comparatively heavy rainfall, when the rain comes down in heavy showers, is more favourable to the invalid than a lighter one assuming the forms of long continued drizzle and mist. I have not been able to obtain any tables of sunshine or sunny days sufficiently reliable to present in this sketch—nothing beyond the general testimony that "Mullaranny is the sunniest place on the coast."

I am on certain ground in reference to the temperature observations at the neighbouring station of Belmullet, which have been taken for several years (1871–1895) by a reliable local meteorologist, who observes for the Meteorological Office, London:—

	January	July
Mean Dry Bulb Temperature at 8 a.m. -	42·3°	57·5°
Mean Wet Bulb Temperature at 8 a.m. -	41·0°	54·9°
Mean Daily Maximum Temperature -	46·4°	62·2°
Mean Daily Minimum Temperature -	38·7°	53·8°
Mean Daily Temperature - -	42·7°	57·7°
Mean Monthly Rainfall - -	5·48 in.	3·59 in.

These winter temperatures are in thorough accordance with the fuchsia hedge, and with the flora generally. Meteorological observation at Mullaranny has not extended to the recording of the hygrometric conditions of the atmosphere. The prevailing winds are westerly.

The journey to Mullaranny is an easy one. The voyager can leave Dublin after the usual breakfast hour, and arrive comfortably and without fatigue within a few yards of the hotel in time for a late luncheon. Something must also be said with reference to accommodation, not that the writer desires to "boom" any particular establishment, but a health-resort without proper residential accommodation is worse than useless. In the Railway Hotel will be found charming grounds commanding fine views over land and sea, electric light, perfect sanitation, and in fact every appliance of the most advanced modern comfort, and for those who do not wish hotel life other fair accommodation is available.

A few concluding words as to the class of diseases for which Mullaranny is recommended. In my opinion it offers a great field for the winter treatment of the early stages of pulmonary consumption, on the modern open-air plan. For chronic bronchitis and pulmonary diseases generally the mild, equable climate presents great opportunities: for the invalid who is able to go about, and who can take a fair amount of exercise, it is very suitable, and for such people there is a variety of walking, driving, or cycling runs through fine scenery on quartzite roads of easy gradient, which are always hard and free from mud, like the well-known Connemara roads. For those who are simply overdone with hard work Mullaranny offers great advantages; and for "week ends" it is very suitable for the healthy recreation of the busy. I shall be glad indeed if this brief account of a place, which will, in my opinion, be one of the great Irish health-resorts of the future, will induce the medical profession to give it a trial. It will be found cheaper and much more accessible than the Riviera, and to the sick perhaps quite as useful.

ART. XI.—*Public Health and Preventable Disease in the Counties of Cork, Kerry, and Waterford.* By PATRICK LETTERS, M.D., D.P.H.; Fellow of the Royal Academy of Medicine in Ireland; Fellow of the Royal Institute of Public Health; Fellow and Member of Council of the British Balneological and Climatological Society.

(Continued from page 119.)

Influenza.—As a large contributor to the country's mortality, influenza has but a short history. Since 1890, however, it has influenced the general death-rate materially. The deaths recorded throughout Ireland last year amounted to 1,535. In the previous year the deaths were 729 only, but since 1890 the average annual number has been 1,759. Previous to 1890 the deaths from influenza were trifling.

INFLUENZA MORTALITY TABLE.

—	Deaths	Death-rates
Cork	72	0·170
Kerry	32	0·185
Waterford	18	0·189
South Munster	122	0·176
Cork Union	18	0·135
Ireland	1,535	0·337
England (1895)	12,880	0·424

As the quarterly returns do not give figures for influenza, it is impossible to make a calculation for the nine dispensary districts comprising Cork city. The deaths and death-rates for the whole Union of Cork have been substituted. It will be seen from the foregoing table that South Munster and its three counties have escaped, to a great extent, the influenza wave of 1897, which seems to have expended itself mainly in Ulster, where more than half the total deaths in the country occurred. The interest attaching to the local distribution of influenza in the counties is not equal to that of the diseases already discussed, as it is less preventable, and, when it gains a footing in a district, less controllable than others of the zymotic class, Outside of Cork Union, Kanturk and Mallow showed the highest influenza mortality in the county, 11 deaths having occurred in the former union, and 9 in the latter. In Kerry, the disease was mainly centred in Killarney and Dingle Unions, where 11 and 7 deaths respectively occurred. In Waterford, 12 deaths occurred in the union of Waterford.

Whooping-Cough.—It is enough to invest this zymotic with supreme interest to mention that it carried off more lives in Ireland in 1897 than measles, scarlet-fever, and typhus combined. If tubercular diseases be left out of count, whooping-cough easily held first place, amongst preventable diseases, as a death-producer in this country. Under the age of five years it is by far the most fatal of the communicable diseases, and under the age of one year it is second only to diarrhœa in its destructiveness. The lives sacrificed to whooping-cough in Ireland last year amounted to 1,851. In 1896 the death-tribute was much less serious, 1,040 fatalities only having occurred. The average annual number of deaths from whooping-cough in Ireland for the ten years 1887-1896 was 1,255. South Munster contributed much less than its due proportion to the mortality from whooping-cough, 174 deaths having occurred within the combined area of the three counties, which was equal to 9·4 per cent. only of the total mortality of the country from this disease. In the counties, 91 deaths occurred in Cork, 39 in Kerry, and 44 in Waterford. Calculations for death-rates bring out the following results, which again, for greater perspicuity, are presented in tabular form.

That the mortality from whooping-cough in England is being sensibly diminished is evidenced by the fact that its average death-rate per 1,000 of the population in the ten years 1881-1890 was 0·45, a rate not much different from that of Co. Waterford last year. Sanitation can do more for the arrest of whooping-cough than is generally understood. Its enormous destructiveness of life is somehow not well impressed on the popular mind. It is very generally regarded as a commonplace sort of disease, for which nothing can be done by way of prophylaxis, and which all children must necessarily contract. An exposure of these huge fallacies on all occasions would pave the way for good sanitary work directed against whooping-cough. The tender age of its victims to some extent masks the high morality of whooping-cough, but the loftiest aim of sanitation is to save the helpless and the young. It follows, from the remarks just made, that the local distribution of whooping-cough claims careful study. In the union of Macroom 11 deaths occurred, but 10 of these were in the dispensary district of Slievereagh; in Millstreet 4, in Queenstown 5.

WHOOPING-COUGH MORTALITY TABLE.

—	Deaths	Death-rates
Cork - - - -	91	0·215
Kerry - - - -	39	0·225
Waterford - - -	44	0·463
South Munster - -	174	0·251
Cork City - - -	59	0·657
Ireland - - -	1851	0·407
England (1895) - -	9,594	0·316

Elsewhere throughout Co. Cork the deaths were scattered here and there in smaller numbers. In Kerry, 13 deaths occurred in the Union of Killarney, 10 in Kenmare, 10 in Tralee, of which 9 were in the dispensary district of Castleisland. In Waterford County, Dungarvan Union contributed 13 deaths, of which 9 were in the Dungarvan dispensary district, Lismore 13, Waterford City 8.

To illustrate, by an example from each of the Southern Counties, the powers of whooping-cough in the way of destroying life in small rural communities, let me draw attention to the following table:—

—	Population in 1891	Whooping-cough Death-rate
Slievereagh Dispensary District (Cork) - - -	4,134	2·416
Castleisland Dispensary District (Kerry) - - -	5,209	1·728
Dungarvan Dispensary District (Waterford) - -	8,216	1·095

Do these figures impress anything? They should; for they show that in Slievereagh whooping-cough was fully eleven times more fatal than the same disease throughout the whole extent of Co. Cork, that the rate of death in Castleisland was more than seven and a half times that of Kerry, and that the high whooping-cough death-rate of Co. Waterford was more than doubled in Dungarvan. May anything further be added in reference to the distribution of whooping-cough in South Munster to fix attention to its great importance? Nothing further should be necessary, but to close the subject of whooping-cough, it may be mentioned, as a recorded fact, that the union of Lismore had a death-rate from this disease in 1897 which was exceeded by three unions only in the whole of Ireland.

Diphtheria.—This disease stood responsible for 339 deaths throughout Ireland last year. In the preceding year 323 deaths occurred, and in 1895 the still smaller number of 305.

It is thus seen that in diphtheria we have one of these preventable diseases which, though not so destructive of life as several others, still shows one most undesirable feature—namely, that it is a thing with which we have constantly to reckon from year to year with a mortality which shows no tendency to diminish. In the ten years 1886-1895 the average annual number of deaths was 353. Being a typical filth disease, its mortality should be lessened by vigorously applied sanitation, yet it goes on from year to year snatching away its 350 victims with unceasing regularity. The deaths from diphtheria in Cork numbered 43, in Kerry 1 only, and in Waterford 2. South Munster, therefore, had rather less than its proportionate amount of diphtheritic mortality, but Co. Cork had too much. Rates come out as under:—

DIPHTHERIA MORTALITY TABLE.

—	Deaths	Death-rates
Cork	43	0·101
Kerry	1	0·006
Waterford	2	0·021
South Munster	46	0·066
Cork City	15	0·167
Ireland	339	0·074
England (1895)	7,895	0·260

With all our shortcomings in Ireland—hidden and confessed—we may be permitted to indulge a modicum of gratification on finding that, in the matter of diphtheria mortality, we were in 1897 no less than three and a half times better off than England was in 1895. It is not an accidental relationship this much greater freedom of Ireland from diphtheria, but a constantly recurring feature of all recent statistics. Let it not deceive us, however, that we are making headway against diphtheria in this country; for we are not. The reason is that diphtheritic mortality has been a progressively increasing quantity in England within the past generation. In 1876 the English death-rate from diphtheria was 0·129 per 1,000 living, that is, just one half of what it rose to twenty years later. As the English increase has been mainly in urban districts, it is supposed that compulsory education, by obliging all children to attend school, has opened a wider channel than formerly existed for the propagation of diphtheria, but doubtless this is not the only operating cause. It will be observed that Co. Cork showed a considerably higher death-rate from diphtheria than Ireland, but that Kerry's record, on the other hand, could not have been better, except in the event of total freedom from the disease. Outside Cork city, the union of Mallow was conspicuous for its high diphtheritic death-rate. In this union 14 deaths occurred, 7 of which were in the dispensary district of Doneraile.

The diphtheria death-rate for Mallow union works out to 0·598 and for Doneraile district to 1·963 per 1,000 of their respective populations. Both rates point to an extremely serious outbreak. If Doneraile had been an English parish the greatest alarm would have arisen; for its death-rate would have been almost eight times heavier than that of the entire country. As it was, with a mortality twenty-six times that of Ireland, it would be interesting to know what public notice, if any, the outbreak attracted, or if it formed the subject of a searching sanitary investigation.

Enteric Fever.—This filth disease we are accustomed to regard as, *par excellence*, a test of applied sanitation. It must be confessed, however, that we have not achieved that measure of success in the prevention of enteric fever which we have with some other diseases, *e.g.*, small-pox, typhus, cholera, A disease which prevails endemically, as typhoid frequently does, is oftentimes more troublesome to eradicate than those which occur epidemically, for the reason that the endemic disease requires to be attacked by specialised sanitation on the spot, while the epidemic one may be often controlled by the operation of some sanitary principle or law of universal applicability. It has been found, for example, that small-pox, a typical epidemic disease, has been banished from Ireland by the single preventive measure of vaccination. Enteric fever is endemic in a given locality, but before it can be assailed its origin must be minutely investigated. It must be determined whether the drinking-water of the place has been polluted, whether an excrement-sodden soil is the fault, whether sewage gas is poisoning the atmosphere, whether underground drains or filth pits are leaking into wells, whether the disease is being disseminated by milk, whether the bacilli are wafted on microscopic rafts and then inhaled, or whether the disease is traceable to accidental importation from some neighbourhood at a distance.

It is the determination of these and kindred points which constitutes the real difficulty in dealing with typhoid fever; for, it is clear, we should know in what manner or by what channel the disease has arisen before a scientific remedy can be employed for its eradication. A glance at the official figures of the Registrar-General for England will show that there has been a gradual—though by no means a great or an unbroken—fall in the mortality from enteric fever within the past twenty years. If we examine the two decenniums 1876-1885 and 1886-1895, the figures all through the latter period will be found below those of the former, and, if we look to the extremes of each period, we shall get at the result of twenty years of sanitation in England in respect of enteric fever. In 1876 the death-rate was 0·309: in 1895 it had declined to 0·175. Let us now turn to Ireland. The average annual number of deaths for the decennium 1887-1896 was 805.

In 1896 the deaths fell short of this average figure by nearly 100, but last year they rose again to almost one thousand—exactly 998. It is to be hoped that this upward tendency will not continue, but Belfast union and the Dublin Registration District are favourite haunts of enteric fever, and last year between them contributed 58 per cent. of the deaths. In the County of Cork 48 typhoid deaths occurred, of which 15 were within the city. In Kerry 2 deaths occurred; in Waterford 15. The amount of enteric fever in South Munster was, proportionately to Ireland, small; but the distribution was most unequal, Kerry and Waterford showing a singular contrast.

ENTERIC FEVER MORTALITY TABLE.

—	Deaths	Death-rates
Cork - - - -	48	0·113
Kerry - - - -	2	0·012
Waterford - - -	15	0·158
South Munster - -	65	0·094
Cork City - - -	15	0·167
Ireland - - -	998	0·219
England (1895) - -	5,326	0·175

The enormous difference in the enteric fever mortalities between Kerry and Waterford—the latter county being thirteenfold heavier than the former—is noteworthy. Its fuller signification may appear when we come to consider preventable disease as a totality in these southern counties. If we take away the urban influence from Co. Cork by disregarding the city, the death-rate from enteric fever in rural Cork will stand at 0·099, a rate 37 per cent. below that of Co. Waterford, but no less than eight and a quarter times heavier than that of Co. Kerry.

Coming to the local distribution of enteric fever in Cork County, it is found that 6 deaths occurred in Kanturk union, 5 in that of Bandon, 5 in Fermoy, and 4 in Middleton. No typhoid focus existed in Kerry. In Waterford union 8 deaths occurred, of which 6 were in the city. In Dungarvan union 5 deaths took place, of which 3 were in the Dungarvan dispensary district. On account of the high public health interest which enteric fever commands I have worked out the calculations for death-rates, which I find as follow:—Kanturk union, 0·229, Bandon union 0·248, Fermoy union 0·196, Midleton union 0·167, Waterford union 0·159, Waterford city 0·208, Dungarvan union 0·294, Dungarvan dispensary district 0·365. All these rates are very serious when compared with whole-county rates. Waterford city shows a much higher enteric fever mortality than Cork city. Dungarvan dispensary district shows the highest typhoid death-rate in all South Munster. It is no less than thirty times the rate for the whole county of Kerry and two and a quarter times heavier than the heavy enteric fever death-rate of the County of Waterford.

Diarrhœa.—As a cause of death diarrhœa takes a very prominent place in our national statistics; and as the vast majority of cases proceed from preventable causes, the figures claim our best study. Diarrhœa caused considerably more deaths in Ireland last year than enteric fever, typhus, and diphtheria combined. It is a great slayer of infants under the age of one year, more so, indeed, than any other disease of the zymotic type. Under the age of five years, though less fatal than whooping-cough, it takes a clear precedence of any other communicable disease as a death-producer, and, in advanced life, it very frequently closes the scene. In 1897 no fewer than 1,640 lives were sacrificed to diarrhœa throughout Ireland. In 1896 the deaths from this cause were 1,421, and the average annual number for the ten year period 1887-1896 was 1,414. It is thus seen that diarrhœa destroys life, not only in wholesale fashion, but with marked uniformity from year to year.

In the County of Cork the deaths numbered 113, in Kerry 33, and in Waterford 66. In the union of Cork diarrhœa caused 57 deaths, and within the city 48. In the union of Waterford it killed 48 persons, and in that city 37. The mortality rates are shown in the following table, in which Waterford city is included to show the increased fatality of diarrhœa in urban districts:—

DIARRHŒA MORTALITY TABLE.

—	Deaths	Death-rates
Cork - - - -	113	0·266
Kerry - - - -	33	0·190
Waterford - - -	66	0·694
South Munster - -	212	0·306
Cork City - - -	48	0·535
Waterford City - -	37	1·281
Ireland - - -	1,640	0·360
England (1895) - -	26,552	0·874

The large difference between the diarrhœa death-rates of England and Ireland is due to and easily explained by the enormous relative disproportion of the urban communities in the two countries. It is characteristic of autumnal diarrhœa—that form of the disease whose true zymotic nature we all recognise—that it is practically confined to cities and towns, and has its origin in soils too filth-polluted to admit of purification by the natural agencies of oxygenation and insolation. If to these we add the absence from towns of the potent purifying powers of vegetation, we have, in conjunction with aggregation of population, the key to urban insalubrity.

(*To be continued.*)

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Twentieth Century Practice. An International Encyclopedia of Modern Medical Science by Leading Authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D. New York City. Vol. XV. Infectious Diseases. London: Sampson Low, Marston & Co. 1898. 8vo. Pp. 658.

FEW in number, the articles in this volume are of exceptional importance and, we may add, merit. Half the volume is taken up with influenza and typhus fever. The other subjects discussed are—plague, glanders, anthrax, foot and mouth disease, actinomycosis, rabies, and pyæmia and septicæmia.

The not light task of writing on influenza was entrusted to Dr. Ditmar Finkler, Professor of Internal Medicine in the University of Bonn, and right well has he discharged his task. One of the best known writers on this strange malady, Dr. Finkler does ample justice to other authors on the subject. "With the discovery of the micro-organism of influenza by R. Pfeiffer in the year 1892," he writes, "a milestone was reached in the history of this disease." The doctrine of the infectiousness, or contagiousness, of the malady was thereby established, as well as the entity of influenza. "In the closing years of this century" (that is, the nineteenth—not the twentieth—century) "influenza has given us occasion to test all the modern attainments of medical science." "It may be truly said that influenza has become the teacher in many branches of medicine, and it has demonstrated to the whole world such thoroughness of methods on the part of physicians and investigators that our profession has a right to feel proud of its members." With these sentiments of Professor Finkler all must agree.

The long article on "Typhus Fever" is indeed a novelty. Just fancy a monograph on typhus in which Ireland and the Irish are scarcely mentioned, and in which the dramatic scene is laid in Mexico. The contributor is Dr. Eduardo Licéaga, Professor of Surgical Therapeutics in the National School of Medicine, Director of the Maternity and Infants' Hospital, and President of the Superior Board of Health of Mexico—a strange medley of appointments for an author on typhus to hold.

Until we read Professor Licéaga's article, we did not know, or had forgotten, that typhus had a home in Mexico—aye, and a very permanent home also. This being so, Murchison's surmise that the so-called Oriental Plague (bubonic fever) is perhaps the typhus of warm climates receives a death blow, even supposing the discovery by Kitasato of the *Bacillus pestis* had not finally settled the question in favour of a radical distinction between typhus and plague. Like all previous writers, Dr. Licéaga is obliged to confess that "up to the time these lines are written the pathogenic microbe of typhus fever has not been discovered," and that "up to the present we know of no specific remedy for the cure of typhus fever."

The general facts in relation to this fever hold good for Mexico as for other regions. While admitting that one attack usually confers immunity, Dr. Licéaga states that this is not an absolute rule. He himself remembers the case of a physician who had charge of the typhus fever patients in the Hospital Juárez, and whom he saw three separate times suffering from typhus. Another case which he saw was that of a lady who died while still young from a third attack.

"Plague," by Dr. S. Kitasato, the discoverer of the *Bacillus pestis*, and Director of the Institute for Infectious Diseases, Tokio, Japan, and his assistant, Dr. A. Nakagawa, is naturally an authoritative pronouncement on the subject. Dr. Kitasato (page 335) draws a marked distinction between Yersin's plague bacillus and that described by himself. He subsequently states, when speaking of specific treatment of the disease, that it is obviously of primary importance to decide which one of the two distinct species of bacilli, Kitasato's or Yersin's, is to be regarded as the specific plague microbe, in order that the serum treatment may be established on a scientific basis. Yersin's researches will be found in the *Annales de l'Institut Pasteur*, 1894, 1895, and 1897.

"Glanders" and "Anthrax" are from the pen of Dr. Frank S. Billings, of Grafton, Massachusetts. His style is rather inflated and pedantic, as may be gathered from his definitions. "Glanders," he writes, "is an endogenous, obligatory-parasitic, invasio-infectious disease, due to the pathogenic action of a specific bacillus within the body of a suitable host, which finds its historico-primary origin, and its present genesis invariably among the solipeds, principally the horse, from which it is extended to other animals and to man, directly or indirectly, but not to cattle and swine."

Dr. Ismar Boas, Berlin, Editor of the *Archiv für Verdauungskrankheiten*, writes on "Foot and Mouth Disease." Dr. Nathaniel Garland Keirle, of Baltimore, contributes an excellent article on "Rabies," illustrated by many personally-observed cases of this dread disease.

The volume ends with a long and able article on "Pyæmia and Septicæmia." It is the joint work of Dr. J. M'Fadden Gaston, Professor of Surgery in the Southern Medical College, Atlanta, and of Dr. M'Fadden Gaston, junior, of the same place. We are not a little amused at the definition of medicine and surgery with which the article opens. Organic disorders are surgical, functional are medical. "A mere temporary engorgement of structures which is not accompanied or followed by radical changes in the organisation of the tissues, and which is amenable to the action of drugs, comes properly under the care of the physician. But a modification of structure as to size, shape, or density, whether internal or external, belongs to the domain of the surgeon."

The authors append to their paper a most useful note on Toxicology. "The occurrence," they say, "of cases of poisoning by dressings used in the treatment of wounds calls for an enumeration here of the symptoms and causes of such accidental poisoning, together with a brief discussion of treatment." The poisons discussed are carbolic acid, mercury, and iodoform.

From the foregoing critical analysis it will be seen that Volume XV. of *Twentieth Century Practice* maintains the reputation of this great work.

Methods of Staining the Nervous System. By DR. BERNHARD POLLACK. Translated from the Second German Edition by WILLIAM R. JACK, M.D., B.Sc. Glasgow: F. Baumeister. 1899. Pp. 143.

THIS little book is not intended for beginners in microscopic anatomy, but for those who, having a general knowlege of histology, propose to make a study of the central nervous system. It does not profess to give all the methods which have been proposed for this object, but "chiefly such methods as may be regarded as a more or less certain and useful possession of our province." "It seemed to me useful to give some methods shortly, and others in greater detail. Thus Nissl's stain, Marchi's method, and Golgi's chromate of silver method have been thoroughly gone into. Weigert's stain for the neuroglia too, which, apart from abstracts in the journals, appears as yet in almost no text-book of histology except Weigert's own great work, had to have a fitting description allotted to it." This selection of the best and most reliable methods gives this work a great advantage over such books as Lee's "Microtomists' Vade Mecum," which are absolutely confusing from the mixture of utterly useless methods with those from which good results may be expected.

Dr. Pollack's work is divided into sections, which treat of the methods of removing and cutting the brain, and of determining its weight and volume; of the different hardening reagents, and of their employment; of the methods of embedding, cutting and mounting sections of the brain and cord. A short section gives interesting particulars of the alterations of weight which the brain and cord undergo after immersion in the most usually employed hardening media. In alcohol the brain loses from 7 to 34 per cent., in bichromate of potash it gains

21 to 31 per cent., in 10 per cent. formol it gains 1 to 8 per cent., and in 1 per cent. formol 14 to 23 per cent., according to the period of immersion.

A short description of Edinger's drawing apparatus, and of the arrangements necessary for photographing macroscopic preparations, is followed by the principal section—that on staining. The staining methods are divided into four groups—(1), Stains for the nerve-cells; (2), those for the medullary sheaths; (3), those for the axis cylinders; (4), those for the neuroglia. A section is added in this second edition on the methods to be employed in examination of the retina.

A short but good account of the methods for preparing and staining the peripheral nervous system follows, and some general practical remarks bring the volume to a close. The following is the summary of methods most recommended, and used in the author's laboratory:—

> "For the demonstration of the separate normal constituents of the nervous system :—
>
> "A. For the central nervous system—
>
> "1. For the nerve-cells—Nissl's method, Held's method, the carmine method, especially staining in bulk with soda carmine; the nigrosin method, Golgi's method, Ehrlich's methylene blue method (if the material be fresh).
>
> "2. For the medullary sheaths—Weigert's method, especially in the modification of Kulschitzky-Wolters; the carmine method.
>
> "3. For the axis cylinders—the carmine method, the nigrosin method, Van Gieson's method, Ehrlich's methylene blue method (if the material be fresh).
>
> "4. For the neuroglia—Weigert's method.
>
> "5. For the nuclei—alum-hæmatoxylin.
>
> "B. For the normal peripheral nerves—
>
> "1. For hardened nerves, the above methods for the medullary sheaths and axis cylinders.
>
> "2. For fresh nerves, treatment with 1 per cent. osmic acid, and teasing out in glycerine to show the medullary sheaths, or solution of nitrate of silver, and teasing out in glycerine as before."

A good bibliography and an index complete the volume.

Our thanks are due to Dr. Jack for making this most useful book accessible to English readers. His translation is, on the whole, good, but there are some slips which will no doubt be corrected in future editions. Thus we read continually of "fish-lime"—a term which will hardly convey any meaning to an English reader, but which is evidently a translation of the German "Fischleim," which means isinglass. The note on page 64 must, we suppose, have some meaning in the original, but in the translation it appears to us a mere jumble of words without any sense. But these defects are trifles when taken with the general excellence of the translation. The work is one of the greatest utility, and no histologist can afford not to have it in his library.

A Treatise on "Unripe" Cataract. By WM. A. M'KEOWN, M.D. Illustrated by Nine Plates containing Sixty Original Drawings. Pp. 202. Royal 8vo. London: H. K. Lewis. 1898.

THE author states in his preface that it was in 1884 that he brought to the notice of the profession the treatment of immature cataract by intra-ocular injection and irrigation. From that time till the present injection and irrigation have been in constant use by him, and he has applied them to about 700 cases of various kinds.

The purpose of the present work is, he says, to give particulars of his own most recent work and views. He says he is aware of the work done by other surgeons in intra-ocular irrigation; but it would serve no useful purpose, and be outside the scope of this treatise, to enter upon any detailed description of their various views and practice, or of the various instruments devised by them for the purpose.

In his opening chapter he states that his primary object is to contribute from his personal experience to a more precise clinical knowledge of the various forms of cataract, and especially their behaviour under operation; to show how various forms and stages of cataract, hitherto not usually thought suitable for surgical treatment, may be successfully operated on; and to support his views by detailed reports of cases in such numbers of the common forms as to put aside, as far as possible, the element of chance. He devotes separate chapters to "General Observations," "Classification," "Examination of the Patient," "Removal of Cortex," "Preparation for Operation," "Detailed Description of Apparatus for Injection and Irrigation and Method of Use," "Operations for Cataract," "Postoperative Incidents and Treatment," "Statement of Cases," and "Conclusions." Then follows an appendix in which he discusses the question of iridectomy in cataract operations. After weighing the arguments *pro* and *con* he sums up his conclusions as follows in favour of iridectomy:—"A method entailing so much unavoidable risk, requiring nurses of exceptional experience, ability, and care (not always to be had), necessitating such constant supervision, enforcing longer confinement to bed, imperilling the results of the most perfect operation through the most trifling occurrence, and having in its favour no advantages of a major character, is not one which, with our present knowledge and resources, should be generally adopted, but rather reserved for special cases and for those persons who knowingly prefer it."

The treatise is written in better English than many of the modern scientific works which come before us for review, and the publishers have done their part satisfactorily. The type is large, clear, and well spaced, and the illustrations are both numerous and excellent. To all those who wish to have Dr. M'Keown's views lucidly and fully set before them on all points in connection with the cataract question, we recommend this 200-page book.

Gout; its Pathology and Treatment. Founded on the Goulstonian Lectures for 1897, with additions. By Arthur P. Luff, M.D., Lond. F.R.C.P.; Physician in Charge of Out Patients, and Lecturer on Forensic Medicine at St. Mary's Hospital. London: Cassells & Co. 1898. Pp. 248.

This is an admirable work; we have read it with great interest, and we warmly congratulate Dr. Luff on the book he has written. We are too familiar with works on gout, which, by means of the description of many views and theories in a wordy and diffuse manner, only succeed in thickening the fog that prevails as regards the pathology of this disease. Dr. Luff's work is of an entirely different nature. He has the great advantage of being a skilled chemist, and he tests in his laboratory the views and theories of others. Hence we find that the work before us, although by no means a large book, contains a great deal of original research, and is one of the most valuable additions to the literature of gout that has appeared of recent years.

Dr. Luff wastes no words, but plunges at once *in medias res*. The first chapter contains an account of the present state of our knowledge of uric acid and its compounds. He quotes largely from Sir W. Roberts' works, and in the main follows his views—viz., that the phenomena of gout are produced by the mechanical irritation produced by the deposition of sodium biurate in a crystalline form in the tissues of the body.

Chapter II. deals with the cause of the presence of uric acid in the blood in gout. He shows that in health uric acid is never found in the blood; in leucocythæmia and other diseases uric acid is found in the blood, but gout is not caused thereby, because the kidneys at once excrete it as soon as it appears, although it is produced in excessive amounts. In gout uric acid is found in the blood, although there is no evidence to show that it is formed in excessive amount in the body. This presence in the blood Dr. Luff attributes to renal inadequacy. For some reason or other the kidneys are unable to excrete the uric acid, which is normally formed; hence it accumulates in the blood in the form of sodium quadriurate; this subsequently tends to break up into sodium biurate, and to form deposits in various tissues. Hence it will be seen that Dr. Luff attaches great importance to the condition of the kidneys in gout; he holds that there must be either a functional or an organic lesion of them, and he believes that its seat is the epithelium of the convoluted tubes. As long as the kidneys are sound uric acid is excreted as soon as formed, and even in conditions such as leucocythæmia, in which it is formed in excessive quantities, no retention occurs. "My belief is," he writes, "that a functional affection of the kidneys always precedes any gouty manifestations, and that this functional affection may subside if the exciting cause of it be removed, or it may pass on to a structural lesion. It is the liability to this functional affection of the kidneys which, in my opinion, constitutes the hereditary factor of gout."

In the next chapter Dr. Luff discusses the origin of uric acid, and agrees with Dr. Latham's view that it is formed by the union of urea and glycocine in the kidneys. The glycocine ought normally to have been converted into urea in the liver, but some pathological condition has prevented that change. Dr. Luff several times refers to the view held by Haig and others, that uric acid is introduced ready formed in food, but considers this theory disproved by the fact that uric acid is never found in the blood in health; moreover, Haig's tests for uric acid were not satisfactory.

In Chapter VI. we find an interesting analysis of the ordinary urate deposit found in urine. Dr. Luff's analysis of it (there does not appear to be any former analysis) shows it to consist in his cases of salts in the following proportion:

Ammonium quadriurate	-	7	molecules,
Sodium quadriurate -	-	5	,,
Potassium quadriurate -	-	1	,,

Part II, contains a brief account of the various forms of gout. This part of the work is short, and calls for no special notice. The author agrees with Sir W. Roberts that attacks of irregular or visceral gout are due to the precipitation of sodium biurate in the crystalline form in the organ or tissue affected.

Part III. is very important from its practical bearing on treatment, and deserves to be carefully studied. The author first details some experiments on the relation of the re-action of the blood to the precipitation of sodium biurate. He then, in two chapters, gives an extremely interesting account of the effects of various articles of diet—meat, vegetables, milk, &c.—on the solubility of sodium biurate. As far as we know these experiments are quite original, and they certainly seem to point the way towards a scientific knowledge of the dietetics of gout. For the details of the experiments and for their results we must refer our readers to the original.

Dr. Luff has also subjected to his investigations the ordinary modes of treatment by drugs. Alkalies he believes useless, and sodium salicylate harmful, while colchicum is advantageous, probably owing to its power of lessening the production of uric acid. The last chapter contains an account of the spas and mineral waters in use in cases of gout.

We strongly recommend our readers to study Dr. Luff's book.

Laboratory Work in Physiological Chemistry. By F. G. NOVY, M.D., Univ. of Michigan. Second Edition. Ann Arbor. 1898. Pp. 326.

THERE is no lack of text-books in physiological chemistry, and no abatement of active work in that promising and suggestive field.

The volume before us is the second and revised edition of the text-book used in the University of Michigan, and the experimental details laid down in its pages have been tested by long experience as well suited to the requirements of students.

The author's pupils devote the entire afternoon daily for three months to the study of physiological chemistry—a larger share of time than is generally allotted.

No classification is attempted and no general introduction is provided. Chapter I. plunges at once into the group of Fats, and the succeeding two chapters treat of Carbohydrates and of Proteins (*auct.*), thus covering the three main divisions of food-stuffs. The remaining chapters deal with the fluids and secretions of the body.

The book has been written with the intention not merely of giving a list of tests, but with the broader view of teaching the student to observe and reason and to correlate the laboratory data with the teachings of physiology and pathology.

There is nothing absolutely novel in the book, and it is unnecessary to go through it in detail. Suffice it to say that in the hands of a competent teacher it will prove an excellent and reliable handbook, and any student who intelligently works through the course will undoubtedly possess a sound and accurate knowledge of physiological chemistry.

The urine is very fully discussed, and useful tables for its examination are appended.

La maladie de Carrion ou la Verruga péruvienne. Par **Ernesto Odriozola**, Professeur à la Faculté de Médecine de Lima. Un volume grand in 8° jésus de 220 pages, avec 12 figures en noir, 10 planches hors texte en photogravure et en chromolithographie, et 4 cartes en couleurs, cartonné à l'anglaise. Paris: Georges Carré et C. Naud, éditeurs. 1898.

All the works on Carrion's disease (Verruga péruvienne) hitherto published have left certain essential points in the shade, and have stereotyped certain errors which it is high time should be corrected and dispelled. Accordingly Professor Odriozola has addressed himself particularly to the clinical study of this remarkable endemic malady.

At the time of the construction of the marvellous railway which connects Lima, near the Peruvian coast, with Oroya, some 130 miles inland, and lying east of the Andes, a fever assuming, for the most part, an extremely grave character, used to decimate the gangs of workmen. Some of the victims, after a more or less protracted illness, showed on the skin an eruption which corresponded to the disease commonly known under the name of Verruga (Lat. *Verruca*, a wart). Such is the malady which is described in the work before us. This monograph is divided into four parts. In the first the author presents his readers with the history of the strange endemic disease to which the name of Carrion is prefixed. Daniel A. Carrion was a student in the Faculty of Medicine at Lima, who died heroically on October 6, 1885, in consequence of being inoculated with Verruga péruvienne. In the second part Dr. Odriozola discusses the geographical distribution. The zoological, botanical, geological, and meteorological features of the districts in which the disease is endemic are presented in a very complete fashion. The third part, devoted to a study of the *fièvre grave de Carrion*, sometimes called the *fièvre de la Oroya*, includes a new and most important chapter. Finally, the fourth and last part includes a study of the common eruptive disease, *Verruga* properly so-called, the earliest known form of the malady.

An account of the pathological histology of the cutaneous wart-like sores (*Verrugas*) brings this interesting work to a close. It is illustrated by seven microscopic preparations by Dr. Letulle, and drawn from nature by Karmanski.

Health : Loss and Gain.—No. I. A Plea for the more Definite and Extended Practice of Preventive Medicine. By M. A. CHREIMAN. London: Rebman Publishing Company, Limited. 1898. Pp. 226.

THIS book seems designed to indirectly advocate the author's system of physical culture, but it is only vaguely alluded to here and there, and most of the book is a lament over useless sickness and death. There are a number of useful, and some beautiful, thoughts scattered through the book, and it is certainly suggestive; but instead of being written in plain language it is full of involved metaphors, and straining after style. Such sentences as the following are average samples of the author's cumbrous assaults on the intelligence of her readers:—

> "Must we have a perpetual parable of mourning myrrh-bearers along shadowed ways, who might be making melody in their hearts, and wandering free with their loved ones in the grace of perfected strength!"
>
> "Were it not that we know some of them to be amongst the grandest workers of you all, we might almost say that they are no true 'advisers' who fail to see damage until every one of us can see it, and not all of you together can mend it; or who fail to open our eyes, as they alone can do, to those cruelties to our children to which prestige not cruelty is attached."

When perplexed by various theories about the proper mode of respiration in women, the author appealed to Sir James Paget, who replied—"You may depend upon it that people breathe over the seat of their affections—women breathe over the heart, and men breathe over the stomach."

Judging by subsequent pages, the author, fortunately, was not imposed upon by this dictum, in which Sir James seems to have been trying to answer a fool according to her folly; for she says, "No gain can come to the apex of a lung at the expense of its base," and that diaphragmatic and costal respiration should be complete and conjoined.

I. *Affections Chirurgicales du Tronc. Statistique et Observations.* Par le Dr. POLAILLON, Chirurgien de l'Hôtel Dieu; Professeur Agrégé à la Faculté de Médecine de Paris; Chargé de Cours de Clinique annexe; Membre de l'Académie de Médecine. Paris: Librairie Octave Doin, Éditeur. 1898.

II. *Affections Chirurgicales du Tronc. Region Ano-rectale, Malades Urinaire, Communes aux deux Sexes, Maladies des Organes Genitaux de l'Homme.* Par le Dr. POLAILLON, Chirurgien de l'Hôtel Dieu; Professeur Agrégé à la Faculté de Médecine de Paris; Chargé de Cours de Clinique annexe; Membre l'Académie de Médecine. Paris: Librairie Octave Doin, Éditeur. 1898.

THE first of these volumes contains a record of no less than 340 cases illustrative of the surgical pathology and surgery of the human body—exclusive of head, neck, and limbs. They are arranged under the following heads:—"Lésions Traumatiques;" "Affections Organiques;" "Tumeurs Bénignes;" "Tumeurs Malignes;" "Malformations Acquises;" "Malformations Congénitales." There are fifty woodcuts illustrative of the more remarkable cases. The whole forms a stoutish octavo of 843 pages. Why is it that there is no index? The Table des Matières is by no means "good enough" for ready reference afterwards. We would like to impress this upon so many of our French *confrères*, whose works we have perused with so much profit and pleasure. Their cases are always well selected; their respective styles are unmistakably graphic; the language is always lucid—to the last degree; but the index! the index!!—that is the one thing we still want!!!

The second of these volumes includes but 294 octavo pages, and contains a correspondingly well-selected series of cases. In each, the introduction and commentaries are just sufficient to give the author's general views on the surgery and pathology. These volumes are well worthy the perusal of all lovers of surgery.

An American Text-book of Genito-Urinary Diseases, Syphilis, and Diseases of the Skin. Edited by L. BOLTON BARRYS, M.D.; Consulting Surgeon to St. Luke's Hospital and the City Hospital, New York, and to the Methodist Episcopal Hospital, Brooklyn; Visiting Genito-Urinary Surgeon to St. Mark's Hospital, New York, &c.; and W. A. HARDAWAY, A.M., M.D.; Professor of Diseases of the Skin and Syphilis in the Missouri Medical College, St. Louis; Physician for Diseases of the Skin to the Martha Parsons' Hospital for Children, and to St. John's Hospital, St. Louis. Illustrated with 300 Engravings and 20 full-page Coloured Plates. London: The Rebman Publishing Company, Ltd. 1898.

TWO ponderous octavo volumes on these subjects dishearten the reviewer. It requires a lot of moral courage to forego holidays and give up all your leisure that you may read such volumes. The very list of the names of the forty-seven contributors appals.

Nothing is taken for granted by the writers, and you wade through pages of matter that you remember since your third year at medicine.

It may be necessary to remind some readers of elementary matters and pictures, and descriptions of minor operations may be useful to some others, but it is hard on the purchaser of an expensive book to find that a large part of it is taken up with writing which every student is presumed to make up for a pass examination. We would have preferred more writing on those subjects which call for treatment by the practitioner.

Lest we should be considered as too hard to please we draw attention to a few of the articles.

The first article in Volume I. is on Urine Analysis, by Dr.

Thorndike, and we find the first ten pages taken up with matter which any ordinary text-book on physiology gives. The next article—Diseases of the Penis—gives a quantity of letterpress and several engravings of how to reduce paraphimosis, and contains a quantity which is more fittingly dealt with in an Anatomy. Diseases of the Male Urethra, by Dr. Lydston, commences with Anatomy and Physiology of the Urethra.

Drs. White and Wood's Diseases of the Prostate follow the beaten track, and we are again wearied with the anatomy, and so forth. We look on all this as padding. Information which might be very useful is sandwiched in with the anatomy, physiology, and so forth, to such an extent that what would form a good readable handbook is swollen out to two large octavo volumes, and the purchaser has the enormous mass of padding to pay for.

The Good Regent. A Chronicle Play. By PROFESSOR SIR T. GRAINGER STEWART, M.D., LL.D. Edinburgh and London: William Blackwood & Sons. 1898. 8vo. Pp. 207.

OUR clever and versatile Edinburgh colleague appears in a new *rôle* in this latest work of his ready pen and still readier wit. We have perused every line of his "Chronicle Play," and our verdict is that it is a most creditable piece of literary work—and that too whether we regard it from a dramatic or from a poetic standpoint.

As the author points out in a prefatory note, few historical personages have been judged of more differently than James Stewart, Earl of Moray, Regent of Scotland. He writes—"I am not acquainted with any attempt at an estimate of Moray's career in which his conduct is the main subject. He figures in Lives of Queen Mary and in Lives of John Knox, and of course in histories dealing with the period. But it has seemed to me that he is worthy of being presented as the chief figure on a canvas, so as to show his character in a fuller light."

Some years ago the author threw the story of the "Good Regent" into the form of a "Chronicle Play" by way of recreation during an autumn holiday. And this illustrates what we have long held—that change of mental work is to the physician a true recreation.

Sir Grainger Stewart's poetic power is evident throughout the work—nowhere, perhaps, more so than when Moray describes the view of Edinburgh and its environs from the road on the northern brow of Soutra Hill in the Lammermuirs:—

"Once more my native land. The westering sun
Sheds wide its glorious rays o'er all the plain,
O'er the scarred slopes of Pentlands and the peak
Of far Ben Lomond in its lonely height,
And the tumultuous group Ben Ledi leads,
The Ochils' noble line, Schiehallion's crags,
And those more distant hills whose outlines dim
Awaken in my heart fond memories;
The Lomonds and Benarty near my home
Of boyhood's days, and all the shores of Fife,
Inch May, the Bass, North Berwick Law, Traprain,
The rich and fertile fields of Lothian,
With Edinburgh in the heart of all,
Sheltered beneath its crouching lion. Yea,
Even David's tower stands out upon its rock,
Inchkeith, Inchcolm, and all these islands fair
That grace the ample waters of the Forth.
We well may love this fairest of all lands."

Doctor Therne. By H. RIDER HAGGARD. London: Longmans, Green & Co. 1898. 8vo. Pp. 253.

THE genesis of this tale is best explained by the "Author's Note," which introduces it:—"Some months since," writes Mr. Rider Haggard, "the leaders of the Government dismayed their supporters and astonished the world by a sudden surrender to the clamour of the anti-vaccinationists. In the space of a single evening, with a marvellous versatility, they threw to the agitators the ascertained results of generations of the medical faculty, the report of a Royal Commission, what are understood to be their own convictions, and the President of the Local Government Board. After one ineffectual fight the House of Lords answered to the whip, and, under the guise of a 'graceful concession,' the health of the country was given without appeal into the hand of the 'Conscientious Objector.'"

The story which Dr. Therne tells opens about the year 1895, and closes about 1918, twenty years after the passing of the Vaccination Act of 1898, a measure which might more fittingly be "intituled" the "Anti-Vaccination Act," and which has been dubbed the "Vacillation Act," in allusion to the hesitancy which the "strongest Government of modern times" displayed in connection with its passing, and to the *volte-face* of its sponsors.

Briefly told, Dr. Therne settles at Dunchester after his romantic marriage at the age of five-and-twenty. From the start he incurs the malignant jealousy of a titled medical practitioner, who is as unscrupulous and traitorous as he is incompetent and clumsy. In the end Dr. Therne is rescued from destruction by a rabid anti-vaccinationist, who ultimately secures his election as Member of Parliament for Dunchester in that interest. Dr. Therne, M.P., takes his seat in the House of Commons just in time to speak and vote on the Vaccination Bill of 1898—the conscientious objectors' clause in which has his hearty support.

Twenty years afterwards Dunchester is decimated by small-pox, to which fell disease the doctor's only daughter falls a victim, as she had never been vaccinated. Panic-stricken, Dr. Therne re-vaccinates himself in the presence of his daughter, who was at the time actually ill of small-pox. A few days later, after her death, his craven and dishonourable conduct is ruthlessly exposed at a public meeting of his constituents by the gentleman to whom his daughter was shortly to have been married. "Murderer of your own child," cries that distracted lover, "I reveal that which you hide!"

"Then with his right hand suddenly he caught me by the throat, with his left he gripped my linen and my garments, and at one wrench ripped them from my body, leaving my left breast and shoulder naked. And there, patent on the arm where every eye might read them, were these proofs of my infamy which he had sought.

"I swooned away, and, as I sank into oblivion, there leapt from the lips of the thousands I had betrayed that awful roar of scorn and fury which has hunted me from my home, and still haunts me far across the seas."

The story is, of course, well told, but its opening is too dramatic to be realistic, and we are glad to think that it would be hard to find in the ranks of our profession so sneaking a rascal as Sir John Bell, the fashionable "doctor" of Dunchester.

The Treatment of Disease by Electric Currents: A Handbook of Plain Instructions for the General Practitioner. By S. H. MONELL, M.D.; Founder and Chief Instructor of the Brooklyn Post-Graduate School of Clinical Electro-Therapeutics and Roentgen Photography; Fellow of the New York Academy of Medicine; Member of the New York County Medical Society; Editor of the Electro-Therapeutic Department of the *Medical Times and Reporter;* Author of "Manual of Static Electricity in X-Ray and Therapeutic Uses." New York: William Beverley Harison. 1897.

THIS portly and well-printed octavo of 1,100 pages is a really valuable addition to what we had recently been regarding as our overstocked library. It fills, and fills well and honestly, an important vacant space in the series of directories of our therapeutical armamentarium. As the author himself observes, "The treatment of disease by electric currents is an essential part of the practice of medicine."

The preface opens with the important, if apparently axiomatic, statement that "galvanic, faradic, and static currents are important remedies which can only be prescribed by those who know how to use them." We will add to this indisputable assertion our own personal opinion to the effect that the great majority of the members of our profession will assuredly find their knowledge of the applicability of electric currents improved and expanded by a careful perusal of the contents of this volume.

The text is subdivided into seventy chapters. Of these from I. to XIV. are preparatory; the remainder deal with the application to the various pathological conditions. A large space is given to the treatment of the genito-urinary organs; rectal conditions receive a special chapter; then we are introduced (Chapter XXXVII.) to " Special Therapeutic Methods," under which heading we find:—" The electric light as a therapeutic agent. Therapeutic properties of X-rays. Sinusoidal currents. Cataphoresis. Metallic electrolysis. Zinc-amalgam electrolysis. Thermo-electric currents. Electric water-bath. The electric douche. The electro-therapeutic cabinet bath. Central galvanization and general faradization." Pain, headaches, neurasthenia, brain-fag, insomnia, neuralgia, rheumatism, paralysis, &c.—all receive their due proportion of attention.

The author tells us that it has been his aim " to make this treatise a plain handbook of instruction in the medical uses of electricity. It is therefore free from electro-technics and terms which the general practitioner may not understand. Even in nosology I have avoided formal classifications of disease, and have chosen descriptive terms of clinical significance rather than the system of the lecture-room. . . . As the name of a disease does not always signify the pathological state or stage of a progressive lesion, I have described the electrical treatment for a variety of different clinical conditions in important diseases so that the physician can turn to these pages for practical help in the treatment of his own cases."

We cordially congratulate the author on the way in which he has carried out his self-imposed task, to which he evidently applied himself *con amore*. We trust that this volume will give encouragement to other investigators and practitioners to further researches into the extent and the limitations of a therapeutic agent which has, we feel confident, a great future in the alleviation of human suffering and disease. We have derived both profit and pleasure from the perusal of the pages of this volume, and we cordially recommend it to the notice of every earnest and thoughtful member of our profession.

PART III.

SPECIAL REPORTS.

REPORTS ON THE PROGRESS OF NEUROLOGY AND PSYCHIATRY.

By CONOLLY NORMAN, F.R.C.P.I., and W. R. DAWSON, M.D.

Experimental Researches on the Alterations of the Nervous Elements in Toxic States, &c., have been prosecuted by various Italian observers with results of the utmost interest and importance.

Uræmia.—Sacerdotti and Ottolenghi (*Rivista di Patologia Nervosa e Mentale*, Vol. II., fasc. 1), describe the conditions found in experimental uræmia. They examined the cortex of the mantle, the cornu Ammonis and the cerebellum, by the methods of Golgi and of Nissl. By the former mode they found very distinct evidence of varicose atrophy of the dendrites of the gangliar cells, the axis-cylinder process being usually unaltered. This change occurred throughout the entire cortex, and was found in cells of all categories. It was less extensive in the pes hippocampi, though well marked there, and also in the molecular layer of the cerebellum. In all the regions examined the prolongation of the neuroglia cells partook of the varicose degeneration. In this particular the authors' observations seem to differ from those of Acquisto and Pusateri, made simultaneously, but published somewhat earlier in the same journal. They note that they failed to find by the method of Nissl the chromatolytic changes described by Acquisto and Pusateri in experimental uræmia, but they did not examine the cells of the cord as did the latter observers. In only one of Sacerdotti's and Ottolenghi's animals naked eye appearances were found (slight opacity of the pia and a certain amount of softening of the superficial layers of the cortex). In this case one kidney was removed, and then, after 75 days, the other. The dog was killed 7½ days after the second operation; the animal was in deep stupor for 4 days. In this case the dendrites seemed shrivelled as well as varicose, the apical processes swollen and deformed, and the cell-body very irregular, with curious marginal appearances resembling erosions, with regard to which our authors could not determine whether they were due to failure of the stain deposit or to real loss of substance. Certain appearances found in preparations from the same subject stained with thionin seemed, however, to confirm the latter view.

Focal Hæmorrhages.—Drs. Dotto and Pusateri, collaborating, have investigated the changes in the cortical elements secondary to focal hæmorrhages (*Op. cit.* II. 1). They claim to have proved that a process of secondary atrophy in the cortex of the affected side follows capsular hæmorrhages, that the changes produced in the cells are not uniformly diffused, and, incidentally, that the cortex of the island of Reil in man is connected with the external capsule. The first stage of the alterations described corresponds with what Marinesco calls Nissl's degeneration, and Lugaro the reactive phase. In this, various stages are observed of dissociation of the chromatic elements. Contrary to what occurs in other pathological conditions and in intoxications these changes do not begin around the nucleus, but in the neighbourhood of the origin of the axis-cylinder process. The second stage is characterised by migration of the nucleus, dependent, as Lugaro has shown, upon destruction of the intra-cellular fibres, which normally retain the nucleus in position. This answers to what Marinesco calls Hayem-Forel's degeneration, and Lugaro the degenerative phase.

Arsenic and Lead.—Lugaro contributed to the *Rivista di Pat. Nerv. e Ment.*, Vol. II., f. 2, a series of observations on the action of arsenic and lead on the nervous elements in cases of experimental poisoning. He incidentally refers to certain interesting observations, made in the course of these experiments, on the structure of the nerve-cell. In poisoning by arsenic the cells of the spinal ganglia presented a typical form of peripheral chromatolysis. This did not appear as in degeneration after section in the form of breaking up of the Nissl bodies into granules, which gradually scatter and disappear; but in this case the chromatic elements seem to dissolve *in situ*, their place not being taken by detritus. In the cord two clearer zones were found macroscopically in the lateral columns corresponding to the pyramidal tracts, and in the posterior columns two narrow zones corresponding to the outer margin of the columns of Goll. These clearer parts contained numerous fibres with swollen axis-cylinders of pale colour, not sharply distinguished from the myelin sheath, which stained diffusely (nigrosin of alum carmine—Meyer). The large anterior cornual cells showed comparatively trifling changes. The chromatic bodies appeared cribriform, and their outlines were indistinct, so that the staining was rather diffuse. The small cells presented more marked conditions of chromatolysis. The cerebellar cells showed little change, some of Purkinje's cells showing a crescentic patch of diminished colour. The cells of the cerebral cortex exhibited relatively trifling alterations, the Nisal bodies being pale, indistinct, and with ill-defined borders. Lugaro remarks that the different degrees of engagement of the motor cells of the cortex and the pyramidal tracts admits of two explanations—either these slight alterations in the cell, corresponding most likely to a mere functional disturbance, are sufficient to cause at the distal end a more remarkable change of atrophic type; or the fibre, being the more sensitive to certain disturbing influences, undergoes primary alteration, modifying thereby the functional state of the cell.

Inanition.—L. Daddi deals with the effects of inanition on the central nervous system (*Riv di Patol. Nerv. e Ment.*, Vol. III., f. 7). He briefly refers to the rather discordant results obtained by various former observers. On the whole, his observations agree with those of Lugaro and Chiozzi published in September, 1897. The alterations in the nerve cells are not early phenomena in inanition. Certain cells are more affected than others—those of the spinal ganglia most, those of the anterior cornua least. Chromatolysis is the chief feature observed. Lugaro and Chiozzi say that the achromatic portion is not affected till very late. Daddi, while agreeing generally in this view, points out that we have more satisfactory criteria for judging of the state of the chromatic than of the achromatic parts, and that it is therefore not safe to assume that the latter are uninjured in cells where the former are profouudly engaged. Lugaro and Chiozzi hold that the conditions found were due to auto-intoxication either of intestinal origin or connected with the products of disturbed metabolic action during inanition. They point out that atrophy of the nerve cell must include the notion of its diminution in size, and that they found no trace of such diminution. On the other hand, Daddi argues that there are no facts to prove intestinal auto-intoxication, the urine not presenting the characteristic changes, nor can he see any reason for believing that there is any other toxic change. He does not think that the question is one of mere atrophy, but rather of dystrophy.

Various Infective Diseases, &c.—E. Caterina briefly noted (*Riv. di Patol. Nerv. e Ment.*, Vol. III., f. 8) the alterations found in the nerve cells in typhus, rabies, puerperal fever, in poisoning by morphia, and in Parkinson's disease. Speaking generally, chromatolysis occurred in all, vacuolation in some typhoid cases and in rabies. In the latter affection pigmentary degeneration also occurred.

In the puerperal infection chromatolysis in the great majority of the cells extended even to the protoplasmic processes. The nucleus was often changed, being sometimes swollen, sometimes shrunken, and rarely showing the reticular network.

In acute morphia poisoning in a dog advanced chromatolysis was found, with homogeneous appearance of the nucleus. In Parkinson's disease there were hardly any normal anterior cornual cells. The chromatic mass was homogeneous, yet broken into fragments separated by linear clear spaces. In some cells the nuclear membrane had disappeared, and the nucleus was represented by a heap of granules surrounding a swollen and uniformly staining nucleolus.

Hyperthermia.—Lugaro discusses the alterations of the nerve cells in experimental hyperthermia (*Riv. di Patol. Nerv. e Ment.*, Vol. III., fasc. 5). The nervous elements of animals whose temperature had been raised to over 43° C. (= 109·4° Fahrenheit) by exposure to extreme heat, present the following characters:—Profound disintegration and extreme dissolution of the chromatic portion; integrity of the achromatic portion, the reticulo-fibrillary structure of which is often rendered more evident than in the normal state; integrity of the external shape, of the morphological characters of the protoplasmic and nervous appendages; integrity of the nuclear membrane and of the nuclear network; diminution of staining-power of that part of the nucleolus which takes on the acid colour with the Biondi-Heidenhain stain, and slight modifications in the shape of the chromatic bodies in the nucleolus (basophilic); in cells having a nucleus rich in chromatin the integrity of the latter is maintained both as to quantity and disposition. A further characteristic of the conditions described is their distribution. In almost all the general affections heretofore studied there is a great inequality in the degree of alteration, even in the elements of the same category, so that close to cells profoundly changed others may be seen having an appearance nearly or quite normal. In hyperthermia, on the other hand, the alteration extends to all the elements, and in a degree almost equal among all members. The cells of the spinal ganglia, of various parts of the cord, of the bulb and pons, of the cerebellar cortex, of the cerebral cortex and cornu Ammonis, of the retina, and of the sympathetic ganglia were examined. Lugaro contends that the experiments of Goldscheider and Flatau, the only observers who have experimented in this field with modern methods, do not fully prove their conclusion, which was, that the importance of the chromatin bodies is not great either to the life or to the function of the cell. On the contrary, he believes that though the chromatic portions of the cell do not contain the necessary structural dispositions for the performance of its functions, they contain the required chemical forces. Hence the progressive enfeeblement of function which follows on the injury and destruction of the chromatin bodies. This view is not inconsistent with the remarkable results said by Goldscheider and Flatau to follow from an interruption of the process of subjecting the animals experimented on to great heat. Lugaro appears to accept this result. The alteration discovered in animals killed at a certain date were found by Goldscheider and Flatau to have disappeared in a short time in animals subjected to the same treatment which was interrupted at the same time that the first animals were killed.

Experimental Insomnia.—L. Daddi (*Riv. di Patologia Nerv. e Ment.*, Vol. III., fasc. 1) describes the alterations of the elements of the central nervous system found in experimental insomnia. The subjects of the experiments were dogs, who were kept awake till they died, in prosecution of the researches of Tarozzi on the metabolic changes occurring in inanition. Daddi seems to think that the results may be somewhat obscured by injuries received in the course of the experiments on nutrition. One of the dogs was kept fasting as well as waking. The conditions found were briefly—lesions of the posterior root ganglia, of the cerebellum, and of the various lobes of the cerebrum. No abnormalities were discovered in the cord or medulla oblongata. The lesions found were chromatolysis, showing all degrees of disintegration of the chromatophil protoplasm up to its complete disappearance; swelling of the body of the cell; rarefaction and vacuolation of the protoplasm, going so far in some cases as to produce almost complete disappearance of the cell; displacement of the nucleus towards the periphery; shrivelling of the nucleus; disappearance of perinuclear membrane and of chromatin intra-nuclear network. The nucleolus appeared to resist change. By Golgi's method, the irregularity of outline of the cells, and the erosion of their bodies (secondary apparently to vacuolation), shown by the thionin method, were confirmed. Varicose atrophy of the protoplasmic processes was also evident. All the changes were identical in the animals who were only kept awake and in the animal who was also starved, but they were more extreme and widespread in the latter. The lesions were most profound in the anterior lobes of the cerebrum and successively less in the occipital and sphenoidal lobes, in the motor region, in the cerebellum and in the posterior root ganglia.

Daddi does not regard these changes as characteristic in kind, and points out their similarity to those found by various observers in other morbid states, but he thinks the distribution probably specific. The anterior lobes, representing the intelligence, obtain no rest in the waking state, therefore suffer most; next come the sensory centres, and finally the motor. The engagement of the spinal ganglia and cerebellum is ingeniously accounted for by a reference to the theories of Oddi and Belmondi and of Luciani. The former authors hold that the spinal ganglia, besides their trophic function in connection with the posterior roots, have an action on the anterior roots, which they reinforce. Luciani holds that the cerebellum has a similar action with regard to the central nervous system, to which it serves as a great ganglion.

Relation of Neuroses and Psychoses.—In an article on the relation of the neuroses and the psychoses, Dr. Serrigny (*Annales Medico-psychologiques, Mars, Avril*, 1898) seems rather to slay the slain in pointing out that hysteria does not exclude insanity, and may even be closely associated with it, not only in the family, but in the individual. Of neurasthenia as a separate entity, Dr. Serrigny seems doubtful. "If there be an idiopathic neurasthenia and a neurasthenia prodromal to melancholia (*n. prélyphémaniaque*), they are certainly not easy to distinguish, especially when we reflect that the latter, like the former, may last for several years, and may be dependent upon the same causes." "The word neurasthenia has no very precise significance, and, if we continue to use it, it only serves us as a convenient mode of concealing our real diagnosis in case of necessity, just as we tell a consumptive when he has come to the last stage of his illness that he is suffering from chronic bronchitis." But do we generally do this? If so it takes some force from later remarks, with which we more heartily agree—"The line of demarcation set up round the psychoses is entirely conventional; it does not really exist. . . . It is often very difficult to say whether a patient has or has not crossed what it is customary to call 'the bounds of insanity.'" "In proportion as [the study of] alienation progresses and is connected to medicine in general, it is perceived that this redoubt in which the psychoses stand at bay is more and more threatened. And the day will come"—he perhaps a little irrelevantly adds—"when the lunatic will no longer be as heretofore the reproach of society and abandoned by science, but will be the most to be pitied of all the sick." *Quousque, Domine?*

Epilepsy.—Kovalevsky, of St. Petersburg (*Ann. Médico-Psych. Série* 8, *t.* 7), reviews epilepsy from the clinical and medico-legal points of view. He notes that the name of aura was given by the ancients to certain prodromal occurrences in epilepsy, because they observed among many patients that the aura took the form of the sensation of a light wind passing over the body—rare in modern experience. He speaks of the epileptic cry as not being a certain indication of a genuine fit. "Perhaps," he says, "it is the final expression of the consciousness and the despair of the soul terrified by the approach of the epileptic attack." Perhaps! but it would be more interesting to know how it is produced, and this does not appear to have ever been properly investigated. It would appear from its sound, and from the efforts necessary to imitate it, to be produced by a forced inspiration through a partially-closed and rigid glottis. Probably a tonic spasm of the diaphragm, combined with spasm of the muscles of the glottis, produces this very noticeable condition.

Hæmatoma Auris.—The infective nature of hæmatoma is once more insisted upon strongly by Pelizzi (*Riv. di Pat. Nerv. e Ment.*, II., 3). Goodall, in an article published in the *Journal of Mental Science* in 1894, confirmed the earlier observations of this author.

Sexual Perversion.—Féré contributes to the *Revue de Médecine* (Dec., 1898) a thoughtful article on the ætiology of sexual perversions. On this disagreeable subject a great deal has been written without any real advance in our knowledge. We are therefore glad to find that this distinguished writer does not merely bring forward some fresh paradox, labelled a new theory, and serving but as a peg on which to hang another accumulation of such unsavoury details as we have had far too much of already. The argument that sexual perversion is an instance of atavism, because the human race is descended from animals which were bisexual, is probably hardly worth serious refutation. It is one of those contentions which explain too much. It would be hard to find any mode of human activity which could not be accounted for on a similar theory. Direct heredity, invoked by von Krafft-Ebing, is admittedly rare, and Féré, though he has himself recorded the case of an idiot who had perverted sexual instincts and was the child of a pervert, yet rightly says that this case does not by any means prove the hereditary transmission of perversion. As to the extravagance of a male body with a female brain, let him controvert it who understands it. The formula is intelligible grammatically; logically it presents no scope for discussion.

The embryological argument seems to deviate a little more nearly into sense, but only seems. It has been argued that because the early embryo is hermaphrodite we can thereby comprehend congenital perversion in individuals who are not hermaphrodite. Féré thinks it necessary to point out that this condition of embryonic hermaphrodism is common to animals, and that there is, nevertheless, no reason to believe that the sex is ever indeterminate. "That the determination of sex may even precede fecundation may be demonstrated in the development of bees and in the production of male or female plants according to the varying conditions of nutrition."

The theory of the writer in Tuke's Dictionary and of Max Dessoir, commonly associated with the name of the latter, that there is a period at or just before puberty, when the sexual passions are undifferentiated, and that at that time they may take a perverse direction is probably true, as far as it goes, but does not seem to account satisfactorily for the rarity of perversion. On the whole, Féré holds that two ætiological factors exist in these cases—a predisposition, or constitutional aptitude to acquire perversion, and an exciting cause, which may often be some trivial and common experience. He gives the details of five observations, in all of which a constitutional taint was shown by profound neurosis in the individual, or in the ancestry, or in the descendants. In all these cases there was also assigned an occasional cause. This common-sense view of Féré's has the advantage of being in accordance with experience. The well-known prevalence of sexual irregularities among idiots and lunatics is thus accounted for. It also applies to the numerous sub-varieties of sexual perversion, such as the so-called fetishism. In this condition the sexual feelings are excited in different cases by various objects quite unconnected with the generative acts, such as shoes, handkerchiefs, &c. This state is totally unexplained by the theory of female brain in male body, or by the notion that certain persons are born with a congenital instinct of attraction towards their own sex instead of the opposite. It is loading congenital instinct too heavily to make it responsible for such vagaries as a passion for shoes.

With regard to treatment, Féré is not hopeful. The constitutional taint accounts for many failures. He seems to doubt the propriety of hypnotic suggestion in these cases. He shrewdly observes that the statement of the patient is an insufficient proof of cure. "The subjects of sexual anomalies often wish to get well after the manner of alcoholists and morphinists. They prefer to say they have recovered rather than to continue the attempt at cure."

Double Suicide in Adolescents.—A case of double suicide is described by De Sanctis and Vespa (*Riv. Quindic. di Psicologia, &c., Genn* 1, 1898) in boys aged respectively fifteen and sixteen. The elder boy suffered from *tædium vitæ*, the younger was influenced by the suggestion of the elder. Contrary to the general rule, the revolver and not charcoal fumes was the mode of death adopted, and also the originator of the idea took the initiative in the act and perished, while the victim of suggestion, though desperately wounded, recovered.

The Ætiological Relations between Dreams and Insanity are discussed by De Sanctis in *Rivista di Psicologia, &c., Febb. e Mar.*, 1898, following up an earlier paper in the same journal on the resemblance, analogy and equivalence of dreams and insanity. Dreams act in two ways in producing delirium:—

1. They act as a psychical trauma, or as a depressing condition. In these cases the mental trouble which results from them may be regarded as a traumatic neurosis, or psychosis, or as a form of exhaustion.

2. Or, the actual *matter* of the dream passes into the waking state, suspending, interrupting, or disturbing the regular associative course of the conscious (mental) life of the individual.[a]

The analogies between dream states and the conditions of first hypnotic suggestion are pointed out, and a number of carefully observed and very interesting cases are given. The following incidental observations are worthy of note:—"The phenomenon of the *déja vu* has not unfrequently its origin in a dream." "Sometimes paranoiacs form a retrospective judgment of their dreams, inducing the mistaken belief on the part of the physician that their delusion has been provoked by the dreams themselves." We do not know that it has elsewhere been noted, but in our experience the reminiscences and retrospects of paranoiacs, whether relating to their waking or sleeping states, are full of these deceptions, mystic interpretation being particularly liable to be projected backwards.

Acute Psychoses connected with Coprostasis.—The wheel has come full circle round, and the copropsychiatry of Schroeder van der Kolk, with which Griesinger made himself merry, is coming into fashion again in a new form. Von Sölder (*Jahrb. f. Psych. u. Neur.* XVI., 1 u. 2) gives as second title to a paper named as above the more modern appellation, "acute delirium from intestinal auto-intoxication." He relates six cases, and claims that, without the introduction of hypotheses as an expression of facts, it may be said that there are cases of coprostasis in the course of which an acute psychosis appears consequentially, being similar or identical in form with acute delirium, and resulting in death from concomitant heart-failure in the course of 8 to 14 days. Autopsy shows hyperæmia and œdema of brain, great engorgement of lungs, and parenchymatous degeneration of kidneys, heart, and liver, depending upon coprostasis in the large intestine with alterations in the mucous membrane secondary thereto. The author's cases, which seem conscientiously as well as carefully recorded, are not wholly convincing. Case V., in which not only were there other indications of lues, but the appearances of the brain suggest general paralysis, was probably wrongly classed as a case of acute delirium. No doubt the disease or group of symptoms which in this country is generally called acute delirious mania or typhomania (the acute delirium of the continental observers) offers many indications which encourage us to hope that it may yet be found to be associated with some toxic condition or conditions. Kräpelin, in the fourth edition of his *Lehrbuch* (p. 259), tells us that he had not yet been able to convince himself of the separate existence of delirium acutum. He seems to regard the cases so classified as being merely severe forms of that group of affections to which he gives the name of collapse delirium. Von Sölder discusses the various theories which have been offered to account for acute delirium. A primary disturbance of the brain circulation is unlikely. Many cases of undoubted brain hyperæmia do not present these symptoms. Bacterial invasion, invoked by several authors as a probable cause, was not shown to exist in his cases. There remains the action of intoxication or auto-intoxication. Against intestinal auto-intoxication are the facts that acetone was found in the urine in only one case, and indican in none. On the other hand, the author points to the existence of parenchymatous degeneration of the internal organs as a proof of intoxication through the intestinal canal, and believes that if that be admitted the cerebral disturbance is accountable through the same cause.

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[a] In either case it is probable that there is something deeper which accounts both for the dream and for the delusion; perhaps a condition of susceptibility. There is a deep philosophy in the poet's words—

"Yet nature is made *other* by no mean,
But nature makes that mean: so over that art,
Which you say adds to nature, is an art
That nature makes."

Quite another class of cases is associated with diseases of the gastro-intestinal tract by Herzog, who, in a recent article in *Archiv. f. Psychiatrie* (XXXI., 1 and 2), describes cases of anxiety and depression, sometimes accompanied by a considerable amount of confusion; cases in which there was also functional heart-trouble, and cases in which imperative conceptions (obsessions) were added to the other symptoms, and he attributed the neurosis or psychosis occurring in all those to gastro-intestinal causes, chronic catarrh of the stomach, chronic catarrh of large intestine, dilatation of the stomach, hydrochloric hyper-acidity, chronic constipation, &c. In such cases, naturally, treatment should be directed rather to the intestinal tract than to the nervous symptoms.

Organotherapy in Nervous and Mental Disease.—Dr. G. Buschan[a] has recently compiled an interesting and useful *résumé* of the literature of organotherapy in general, from which it appears that most of the organs and tissues of the body have been experimented with clinically—generally with some success, if we are to trust the original author. As regards the nervous system, we find that *testicular extracts* or the like have been tried in 342 cases of tabes, of which 314 showed favourable results of a permanent character—loss of lightning-pains and atrophies, and return of muscular sense, potency, and power of micturition and defæcation. The treatment, however, must be prolonged. The drug has also been found to have a good effect, though not so markedly, in other organic nervous diseases. The results in functional disease are stated not to be so favourable, and in insanity are contradictory. The treatment is, however, said to be of use in stuporose melancholia, and as it undoubtedly seems to have a certain tonic influence on the body generally, it might probably affect the mind indirectly in this way. Buschan is inclined to accept Pöhl's conclusion that the active principle is *spermin* ($C_5H_{14}N_2$); but this does not seem to be by any means the universal view—Schäfer,[b] for instance, suggests that the results may be simply due to the nuclein which the gland contains in such profusion. At all events, the action is not specific, but simply tonic. Administration of *ovarian extract* is said to have produced improvement in five out of seven cases of insanity in which it was tried, three being cured. Four of the five were women. In the favourable cases there was bodily as well as mental improvement.

Thyroid treatment seems to have been tried in almost every imaginable class of disease. Its good effects in cretinism need only be mentioned. We are told that it has been usefully employed in tetany, progressive muscular atrophy, and epilepsy; and during the last four years it has been much used in the United Kingdom for mental diseases, into which department of neurology it was first introduced by Dr. Lewis Bruce. According to his method the drug is given in doses of 60 gr. daily for a week, and produces rise of temperature, quickened pulse, and all the symptoms of a mild fever. In some cases mental improvement sets in during the febrile reaction, but in others not until afterwards, and in a certain number goes on to actual recovery.

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[a] Art. Organsafttherapie in Eulenberg's Real-Encyclopädie.

[b] Text-book of Physiology. I., 937.

In Bruce's first published series of 30 cases, there were 14 cured and 7 improved, but all trials of the drug have not been quite so fortunate. It appears to be most useful in stuporose and melancholic conditions, and better results have been obtained with female than with male cases. Dr. Bruce considers it to be contra-indicated in acute mania with wasting. Dr. Middlemass, however, in a recent communication,[a] expresses the opinion that it is "impossible to say in what form of mental disease it will have a beneficial effect." He gives a series of 34 cases from his own experience, of which 6 were cured and 27 showed various degrees of improvement. All the recoveries but one took place in melancholic cases. Upon the whole, it may be said that a trial of the treatment is advisable when there seems to be a danger of dementia supervening, and where it is not contra-indicated by bodily weakness, phthisis, cardiac disease, or old age. In many cases, however, the results, even when favourable, are not lasting. The mode of action is still obscure. Bruce[b] thinks that the mental effect is due to (1), the feverish condition, and especially the reaction following it; (2), direct cerebral stimulation; (3), probably the supply of "some substance to the bodily economy." On the whole, it seems probable that the principal factor at least is the increased activity of the metabolic processes of the entire organism, which the drug unquestionably produces. Whether its effect on the circulation in any way contributes, is a question on which we hope to touch next month in another connection. It may be mentioned in passing that the parathyroids have been found by Dr. C. Easterbrook to be quite inactive.[c]

Within the past year Dr. Campbell Clarke[d] and Drs. Bois and Kerr[e] have published the results which they have obtained from administration of *spleen* in insane cases. These have been, on the whole, satisfactory, and Dr. Clarke is of opinion that this mode of treatment is safer and surer than that with thyroid if less phenomenal in its results, and is, moreover, a good preparation for the latter.

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[a] Journal of Mental Science. Jan., 1899. P. 40.

[b] Journal of Mental Science. Oct., 1895.

[c] Lancet. August 27th, 1898.

[d] Edinburgh Medical Journal. 1898. I. P. 152.

[e] British Medical Journal. 1898. II. P. 684.

Bois and Kerr give their experience in 22 cases. Of these 8 recovered mentally, while in 17 there was physical improvement. Three of the 8 recoveries were in melancholic and 4 in stuporose cases. The exhibition of extracts of *cerebral and nervous substance* has, we are told, given good results in neurasthenia, epilepsy, tabes, psychoses, &c.; but Buschan failed to get any effect whatever from this mode of treatment in a series of cases of neurasthenia. It is not improbable that such results as are to be obtained from either of the last two modes of treatment are due to some degree of tonic action.

The Papillary " Attention Reflex."—Some interesting experiments on this subject have been made by Dr. J. Piltz.[a] Haab having shown that concentration of attention on a bright object in the periphery of the field of vision produced contraction of the pupils, the question arose whether attention directed to a dark object would produce dilatation. This was found to be the case; and moreover, when a dark object was introduced into the periphery of the field on one side, and a light object on the other, any change of attention from the dark to the bright object was at once followed by a change in the size of the pupils, and even fluctuations in the intensity of attention were also instantly registered. The next step was to try whether the mere intense visualisation of a dark or bright object would affect the pupils, and here also the result was positive; the idea of a dark object caused dilatation, of a light object contraction. No effect was produced by visualising indifferent objects. Futhermore, it was found that the pupils dilated not only on muscular effort—such as compression of a dynamometer—but also when the idea of such effort was called up. From these experiments it follows that there must be an intimate connection between the cortex and the centres for dilatation and contraction of the pupils. The observations obviously possess some practical importance.

ANEURYSM OF THE UTERINE ARTERY.

Dr. Paul F. Mundé (New York Academy of Medicine) reported a case of aneurysm of the uterine artery, which, so far as he knew, was unique.—*Medical Record.* [The condition is very unusual; there is, however, a case on record of aneurysm of the left uterine artery, published by Dr. Mars, of Cracow, in 1891.]

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[a] Neurologisches Centralblatt. Jan. 1st, 1899. P. 14.

CLINICAL RECORD.

Delivery of an Unusually Large Child. By Wm. Birmingham, M.D., Freemantle, W. Australia.

On July 28th I attended Mrs. C. in her fourth confinement, and delivered her of an unusually large child. The labour was not very long, the first stage lasting about four and the second about two hours. Throughout the second stage the progress, though slow, was steady and continuous, and I did not consider that the case called for instrumental assistance. When the perineum was fully dilated I introduced two fingers into the rectum, and succeeded with some little difficulty in delivering the head between the pains. The shoulders gave a good deal of trouble, but, disengaging the arm under the arch of the pubes first, I completed the delivery. There was no rupture of the perineum.

I weighed the child, a female, a few hours after its birth, after it had passed urine but not the meconium, and found that, allowing for the weight of its clothes, which I afterwards weighed separately, its weight was fourteen pounds one ounce.

Of Mrs. C.'s other children I was in a position to obtain a fairly reliable history, as in her second and third pregnancies she was attended by my brother. He tells me that her second child, a male, weighed eleven pounds; her third, a male, was prematurely stillborn at a little over eight months—unfortunately for the completeness of my history it was not weighed, but was very much larger than the average fœtus at full term. The first child was, Mrs. C. tells me, of average size. The mother is twenty-eight years old, and weighs about sixteen stone; the father weighs twenty-four stone. The literature bearing on the subject that I have at hand is somewhat meagre, but from it I gather the following facts:—Ingerslev gives as the weight of the largest child out of 3,450 births, 10$\frac{3}{8}$ lbs.; Hecker, out of over 1,000, between 10 and 11 lbs.; La Chapelle, out of over 7,000 cases, found none over 10 lbs. Sir R. Croft is said to have delivered a living child weighing 15 lbs., and Waller (Obstet. Trans., Vol. I.) reports a case of a living child delivered by forceps which weighed 15 lbs. 15 ozs. With those two exceptions I can find no record of the birth of a living fœtus larger than the one I describe.

PART IV.

MEDICAL MISCELLANY.

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Reports, Transactions, and Scientific Intelligence.

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ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—Edward H. Bennett, M.D., F.R.C.S.I.

General Secretary—John B. Story, M.B., F.R.C.S.I.

SECTION OF SURGERY.

President—R. L. Swan, President of the Royal College of Surgeons in Ireland.

Sectional Secretary—John Lentaigne, F.R.C.S.I.

Friday, December 9, 1898.

The President in the Chair.

Discussion on Sir Thornley Stoker's Paper on "Coxa Vara," adjourned from Meeting of November 11th.

The President said that he did not think that any practical surgeon would mistake morbus coxæ for coxa vara in infants or children, as coxa vara is a symptom of rachitis, and there would be other conditions, he thought, to mark the difference. For instance, in coxa vara there are no night cries; in morbus coxæ rotation invariably elicits great pain, but not in coxa vara. He thought that the pain is rather confined to the head of the bone, and that it depended on epiphysitis of the upper extremity of the femur in coxa vara. He mentioned a case of congenital luxation of the head of the femur on the ramus of pubis, where it was only decided, after careful examination, that it was not a case of coxa vara.

Mr. Lentaigne questioned whether some of the cases of so-called morbus coxæ in early stages, which had been successfully operated on, were not merely cases of coxa vara.

Mr. T. Myles did not agree with Mr. Swan in saying that the condition of coxa vara was easily diagnosticated from morbus coxæ, for it must be remembered that until the condition was described the mistake must have occurred a great many times. As yet the condition had not been accurately defined. He thought it extraordinarily like morbùs coxæ in the early stage.

Mr. Croly said that he failed to see why coxa vara could not be diagnosticated from morbus coxæ. What proof was there that cases which had been treated as morbus coxæ were really coxa vara? He did not believe that such had happened.

Sir W. Thomson said that the condition had undoubtedly been overlooked, and was different from morbus coxæ. He did not see why one could claim rickets as a cause when the condition is confined to the neck of the femur, and there is no evidence whatever in the rest of the skeleton of any rachitic condition. But he was satisfied that any condition in the neck of the femur which would lead to softening, whether inflammatory or pre-tubercular, is sufficient to allow straightening of the neck or the reduction of the angle. He agreed with Sir T. Stoker that the occupation of the patient had a great deal to do with the production of the condition.

Sir T. Stoker, in reply, said that the subject was a new one, and, of course, there was room for difference of opinion.

The Operative Treatment of Hernia.

Mr. M'Ardle brought forward the subject of the radical cure of hernia, basing his communication on the results in 342 cases. The ages of the patients ranged from eight months to eighty-five years. Of this number but one died, and that was an instance of umbilical hernia in a man of sixty-five, very stout, and with weak heart and atheromatous arteries. Mr. M'Ardle advocated—1. Free opening up of the inguinal canal, so as to have complete control of the internal ring. 2. Interrupted suture of the internal oblique conjoined tendon to Poupart's ligament, leaving the cord in its normal position. The sac might be ligatured, sutured, or drawn through the external oblique after Kocher's method, but the fundus should be removed, as it could serve no useful purpose however placed. It was a grave mistake in Kocher's method to bring the sac down, and cause it to act as a wedge in the anterior part of the inguinal canal, and in all these cases where the sac was puckered, twisted, or invaginated, its retention was a danger, as proved by many instances of necrosis of the sac, delay of healing, and even of death. Mr. M'Ardle's belief is that the method of dealing with the sac is of no moment so long as we exclude the dangerous and ineffective methods mentioned. A Bantock's ligature placed on the neck close to the internal ring brings the peritoneum to its normal condition. Mr. M'Ardle stated his conclusions as follow:—1. Without opening up inguinal canal no complete operation can be performed. 2. It is a matter of little importance what you do with the hernial sac; it has no bearing on the case; a new sac forms with the greatest readiness, if at any point the mid-stratum of the abdominal wall is defective. 3. There is no evidence in favour of opposing the arrangements of Nature by displacing the cord. 4. To properly reconstruct the canal, the internal oblique and conjoined tendon should be brought down to Poupart's ligament, not merely to the edge of the external oblique. 5. The complete overlapping of the pillars of the external ring forms a firm basis of support for the healing of the underlying conjoined tendon.

This paper was discussed by Mr. H. G. Croly, Mr. T. Myles, Mr. C. B. Ball, Mr. Tobin, and Dr. Knott. Mr. M'Ardle replied, and the Section adjourned.

SECTION OF MEDICINE.

President—J. W. Moore, M.D., Univ. Dubl., President of the Royal College of Physicians of Ireland.

Sectional Secretary—R. Travers Smith, M.D., Univ. Dubl.

Friday, December 16, 1898.

The President in the Chair.

A Case of Chyluria.

Dr. Bewley read a paper on this subject. It will be found at page 105.

Sir George Duffey alluded to the fact that some years ago he brought before the Academy a case of chylous ascites. There was a great similarity between such cases and those of chyluria, but he found that there was much difficulty in tracing their causes.

In some cases of chylous ascites, rupture of the receptaculum chyli had been discovered, but, on the other hand, most careful *post-mortem* examination had sometimes failed to show any rupture of the lymphatics, or of the receptaculum chyli.

Charcot and other French observers had described several cases in which there was chronic peritonitis, advancing this as a possible cause of chylous ascites.

Dr. Knott said that he himself had a case of chyluria under observation at present. The patient was a male, aged fifty-three, a widower. He had had syphilis about five years ago, and gonorrhœa in the early part of this year. Coincident with an eruption of the syphilitic type, he got chyluria, and the specimens of his urine at present were richer in fat globules than even Dr. Bewley's. He could find no trace of the filariæ in the blood. The patient had complained of pain in the lumbar region, and a certain amount of uneasiness, but not actual pain, during micturition. Up to the present, there was no sign of clotting of the chylous urine, such as that described by Dr. Bewley.

Dr. Parsons mentioned a case of ascites in which Dr. Purser, who made the *post-mortem* examination, found the fluid to be perfectly opaque and resembling milk. Shaken up with ether it acted in the same way as the specimens Dr. Bewley had shown this evening, and the microscopical appearances were also identical. Dr. Purser recognised the nature of the fluid, but could not determine the cause. There was nothing to indicate a rupture of the receptaculum chyli. Dr. Purser then suggested that, owing to the increased pressure in the veins on account of the failure of the right side of the heart, the thoracic duct was unable to empty its contents into the veins, and consequently some of the lymph or chyle became extravasated into the abdominal cavity, and hence the turbidity of the ascitic fluid.

The President said he had searched through records of various urinary analyses made by his father during a long series of years, and he had found only two or three cases in which there was anything approaching a milky appearance of the urine. Of course, at the time these records were taken, the parasitic doctrine of chyluria was not understood, but as far as he could judge, the patients from whom these specimens were derived, had not resided in the tropics. He thought enough had been said in this discussion to establish the existence of a non-parasitic chyluria, as well as a parasitic form, though most of the cases described in books were, no doubt, due to the *Filaria Bancrofti.* There were fair grounds, however, for supposing Dr. Bewley's case to be due to parasitic infection. The patient's birth in Mauritius, and her subsequent residence in Hong-Kong, would quite justify that supposition.

Dr. Bewley, in reply, said that Dr. Knott's case seemed to him to belong to a class of cases which Sir W. Roberts in his work on urinary diseases, describes as associated with some kind of eruption on the abdominal walls, and which he (Sir W. Roberts) thought might be due to some kind of lesion of the bladder wall allowing chylous fluid to escape into the bladder.

Mercury in Heart Disease.

Dr. Wallace Beatty read a paper on mercury in heart disease. He quoted extracts from Stokes's work on "Diseases of the Heart and Aorta," in which the immense value of mercury in some forms of heart disease is emphasised. He considers that Stokes in no way exaggerated its usefulness. The cases in which mercury is of special value are those in which there is general venous engorgement, due to chronic mitral valve disease. He prefers to give mercury in small doses repeatedly, in order to produce its diuretic effect, to giving it in occasional purgative doses. The plan he has found generally most effectual is to give about half a grain of calomel with or without digitalis, and squill, according to the state of the pulse every four hours, for from ten to fourteen days, and to counteract any tendency to free purgation by, if necessary, combining the mercury with small doses of opium. He noted the remarkable diuresis which follows such a method of administration, and how again and again this mercurial course may be resorted to with success when recurrences of failing compensation occur. He has seen mercury given in the above way succeed when it failed when given in only occasional purgative doses. Finally, he discussed the mode of action of mercury.

Dr. Bewley said that Dr. Beatty's paper had induced him to think that there was nothing absolute in medicine, since he was previously taught that in cases of Bright's disease, the worst thing the physician could do was to administer mercury, and also that opium was undesirable in the same disease.

Dr. Martley said that Sir W. Broadbent's teaching was that a good purge of calomel would clear the kidneys, and put them into working order by lowering the general venous pressure.

Dr. Langford Symes related a case of a lady who, some years ago, used to have periodic attacks of cardiac dyspnœa, anasarca, and other evidences of cardiac lesion. After trying other remedies she was eventually treated almost exclusively with calomel, and since then, which was nearly four years ago, she had never had a recurrence of the disorder.

The **President** drew attention to the fact that it was doubtful whether mercury, in the form of calomel, blue pill, &c., had any direct action on the liver at all. It was on the duodenum that it acted, and it unloaded the liver by sweeping the bile through the duodenum—that is to say, it had only an indirect action on the liver.

Dr. Beatty, in reply, said that when he commenced to practise he had the same dread of morphin and mercury in Bright's disease as Dr. Bewley. With reference to the larger doses of calomel, which he was told Sir W. Broadbent employed, he recalled one case in particular where calomel was given successfully in purgative doses when small doses had not succeeded. It seemed strange that when they got patients well once with mercury that they continued well for a considerable time, and Dr. Stokes had drawn attention to this point in his work on heart diseases.

A Case of Recovery from Innominate Aneurysm.

Dr. **Craig** read notes of a case of innominate aneurysm in which recovery had taken place after prolonged treatment by rest, a limited dietary, and large doses of iodide of potassium. The patient, aged sixty-five, had suffered from "bilious attacks" all his life, but there was no history of syphilis. The immediate cause of the aneurysm was attributed to straining efforts induced to secure an evacuation of the bowels on April 11th, 1897. Ten days later there were present unequivocal signs and symptoms of the aneurysm, which were attested by Sir William Stokes, Sir C. J. Nixon, and Mr. Wheeler. The patient was kept in bed in the recumbent position for three months, during which period the diet was limited chiefly to milk, gruel, and fruit, ice was regularly applied to the tumour, a daily evacuation from the bowels was secured, and iodide of potassium (in doses amounting to a drachm daily) was administered, with occasional intermissions. The tumour became smaller, the pain and throbbing lessened, but the heart's action was variable, irregular, and intermittent. The second period of three months he spent at Monte Carlo, and here the treatment was persisted in, but, instead of remaining in bed, he spent his days in the garden of the hotel reclining on an American rocking-chair, to and from which he was carried night and morning. Here his symptoms entirely disappeared. At the commencement of the present year he went to the Italian Riviera, where he began to walk about, and subsequently he migrated to Marienbad, where he indulged in plenty of walking exercise and in a more liberal diet. He returned to Dublin during the autumn, and when he was carefully examined on November 28th—eighteen months after the onset—there was no trace of the aneurysm to be found, except a slight prominence and diminished resonance where the tumour had existed. He still persists in taking the iodide of potassium, but in lesser bulk and with longer intervals of abstention.

Dr. W. J. **Thompson**, speaking of the use of chloride of calcium in the treatment of aneurysm, said that a patient was admitted into

Jervis-street Hospital some years ago suffering from aneurysm of the arch of the aorta. She was put on large doses of chloride of calcium (20 grs. three times a day), due care also being taken to secure absolute rest. After remaining in hospital for about six weeks she left, the aneurysm having then diminished considerably in size. She returned twelve months afterwards with the aneurysm back again to its original size, and was once more treated successfully with chloride of calcium. She then left once more, and died on her return this year. On *post-mortem* examination two sets of fibrin deposits were found in the aneurysm, the first evidently corresponding to the first time she was in hospital, and the second to the second time in hospital.

Dr. Craig, replying, said that with regard to Dr. Thompson's case, he thought that the two layers of fibrin within the sac of the aneurysm were accounted for by the fact that the patient got two periods of rest.

Dr. J. Lumsden exhibited two cases of favus.

The Section then adjourned.

SECTION OF PATHOLOGY.

President—J. M. Purser, M.D.

Sectional Secretary—E. J. McWeeney, M.D.

Friday, January 13, 1899.

The **President** in the Chair.

Pathological Femora and Tibiæ.

Dr. Knott exhibited a series of 19 femora presenting various anatomical, anthropological, and pathological peculiarities of interest:—

One beautiful specimen of a healthy femur, of much greater length than the average, and with unusual obliquity of neck.

One otherwise healthy femur with neck nearly approaching the horizontal and approximating the characters of "coxa vara."

One healthy-looking femur with neck nearly horizontal and little anterior curve.

Six showing epiphyses in various stages of union.

One showing extremely pronounced ricketty deformity; anterior convexity beginning abruptly a little below level of lesser trochanter, and neck with the features of "coxa vara." The epiphyses were all in a state of partial union.

One very short (dwarfish) femur, probably ricketty; neck showing the peculiarities of "coxa vara."

Two showing peculiar exostoses in front, probably the result of injury.

One showing fracture (united) of middle of shaft; much overriding and some external rotation.

Two showing fractures at junction of lower fourth; much backward displacement of lower fragment.

One exhibiting extra-capsular fracture, nearly along Guthrie's line, with very little displacement. It had evidently been impacted.

One showing extra-capsular fracture; upper fragment not present, and portion of neck which had belonged to lower fragment completely absorbed.

One showing extreme ravages of subperiosteal disease—excavation and outgrowths—probably syphilitic.

DR. KNOTT then exhibited a series of 19 tibiæ:—

Three showing epiphyses in various stages of growth and union.

Two specimens of pronounced platycnemia.

One showing exaggerated "soleal line," and tendency to osteal outgrowths along attachments of intermuscular septa.

Two were ricketty, both of right side, and both beautiful specimens of the *yatagan* deformity of Broca.

Three specimens of oblique fracture of shaft—one at junction of lower third; the others at junction of lower fourth. One of the latter presented unusual obliquity of direction from above downwards and backwards; the others were in the opposite direction. All were strongly united, with slight deformity.

One showed subperiosteal thickening of oval outline, occupying pretty accurately the upper two-thirds of the lower half of the inner surface. It was evidently the result of the irritation at the seat of a chronic ulcer of the leg.

One showed oblique fracture of both bones of leg a little below the middle. The plane of obliquity was from above and behind downwards and forwards. The specimen presented the unusual feature of agglutination of all four fragments at the seat of fracture by a copious deposit of callus. There was, however, but slight deformity or displacement.

Two specimens of fracture of upper end of tibia. One of these was through the tubercle of the tibia and the other a little below. The latter presented osseous outgrowths at the seat of fracture.

One showed extensive comminution of the upper end of the bone, involving the articular surface, and evidently the result of vertical force of great intensity. Very sound union had, however, taken place, and the lines of lesion presented the almost stereotyped pattern to which attention has been called by Heidenreich.

Three specimens of fracture of lower end involving the articular surface—all evidently the result of force applied in a vertical direction. One of these was transverse in direction (at its opening into the joint) and had broken off a posterior fragment of about a couple of inches in length. Excellent union had taken place.

Each of the others had been accompanied by separation of the internal malleolus. One presented great comminution of the articular surface, which did not appear to have been repaired, although the extra-articular plane of fracture had united thoroughly and with very slight displacement.

Professor E. H. Bennett, remarking on two of the specimens fractured in the same place, but one with the maximum and the other with the minimum degree of displacement, said that it was the tendency of the present day to put down the displacements of fractures as faults in surgery, whereas they were due to the differences of the fractures themselves. He drew attention to a tibia with deformity commonly produced by chronic ulcers so often seen where the ulceration has been very persistent. With regard to one of the specimens, a tibia, the head of which was greatly comminuted, he said that it was of extreme interest and rarity, as it showed the persistency of type—the identity, in fact, of the fractures arising from a constant cause. The fracture was caused by alighting on the feet from a height, and sometimes the os calcis was broken to pieces. The comminution of the head of the tibia was produced by the weight of the body being arrested, the tibia bearing the shock from the femur. He drew attention to three tibiæ, showing a splitting of the articular surface transversely, originating in the centre of the malleolus and going across it. Such fractures, he said, were associated with fracture of the fibula very high up.

Dr. Knott replied.

Specimens Exhibited.

Mr. H. Croly.—(*a*) Tumour of the Left Ovary; (*b*) Specific Fungus of the Testis; (*c*) Carious Os Calcis; (*d*) Scirrhus of Breast of eighteen years standing.

Note on the Agglutinability of Different Races of the Typhoid Bacillus.

The **Secretary** (Dr. WcWeeney) read a note on this subject. He described how he had been obliged to suspend temporarily the sero-diagnostic work at the Mater Hospital, owing to peculiar behaviour of a strain of typhoid bacilli, called, for brevity's sake,

T. A., which he had isolated by the usual methods from the bile of a fatal case of typhoid. Death had occurred in this case from cardiac failure nine days after defervescence, and at the autopsy the ulcers in the small intestine were healed, but there were many open follicular ulcers in the colon. The bacillus T. A. was present in the bile in great numbers and pure culture. It presented the cultural characters of genuine Eberth's bacillus. Distinctive peculiarities were the extreme slowness of its growth on gelatine plates, the fewness, delicacy, and shortness of the flagella, and the fact that although the mobility was extremely active during the first twelve hours of culture, it had died down by the end of twenty-four hours to a waggling movement hardly distinguishable from that of *B. coli.* Tested against the serum of several typical cases of typhoid side by side with a typical race obtained from Professor Lorrain Smith, of Belfast, it proved markedly resistant against agglutinating influences. The dilutions generally practised were 10 per cent., 1 per cent., ·2 per cent., and ·1 per cent. Serums of cases in the third week, which clumped the Belfast bacillus ("L. S.") instantaneously in 10 per cent. dilution, and left the field quite clear of isolated organisms, took an appreciable time to clump T. A., and after the lapse of half an hour the field was not quite free from scattered bacilli. In the 1 in 100 dilution, where L. S. was well clumped at the end of the observation period (two to five hours), T. A. was so imperfectly agglutinated that diagnostic inferences could not be drawn—in fact, with the higher dilutions these two races of undoubted typhoid bacilli gave directly opposite sero-diagnostic results. The speaker went on to discuss the significance of the expression "agglutinable" in the light of the recent work published by Kraus and Nicolle, proving that the phenomenon was the result of the interaction of two substances, one contained in the serum, the other in (and subsequently outside of) the bacterial bodies, which played a purely passive *rôle;* that the serum need not necessarily be immune, nor was the phenomenon essentially specific; and finally, the interesting work of Bordet was described as showing how, quite apart from bacterial action, the serum of the rabbit agglutinated guinea pig's serum containing red corpuscles, causing these latter to form "clumps;" and how, if the serum of the guinea pig, which exercises but a slight agglutinative action on the corpuscles in rabbit serum, be taken from a guinea pig which has previously had rabbit's blood injected a few times, the agglutinative action of the guinea pig serum is greatly increased. The bearing of these researches on sero-diagnostic work was pointed out. The paper was illustrated with slides showing the relative size, length, and number of the flagella of T. A. and L. S.

Mr. O'Sullivan said that in a case of Dr. Finny's, in Dun's Hospital, of typhoid fever, accompanied by effusion into the knee joint, he had isolated bacilli from the effusion which gave the culture reactions, as then practised, of typhoid bacilli, and showed stronger agglutination with the serum of typhoid patients than the stock bacilli which he had at the time. He thought then that this might be due to the fact that the bacilli were more virulent, but it appeared that virulence and the faculty of being agglutinated had no relation to one another. He would like to ask Dr. McWeeney whether, in Krau's experiment, the behaviour of the talc had been examined under the microscope and proved to be a true agglutination, and what was known as to the nature of the coagulation of which he had spoken?

Dr. E. J. McWeeney, replying, said the phenomenon which occurred was one of agglutination and not precipitation. The matter stood exactly thus—one had a limpid fluid consisting of a sort of extract of an old virulent cultivation of, say typhoid bacillus. Suppose this divided into two parts. To both of these parts is added some talc, and on stirring it up a turbid mixture is produced full of the minute particles of talc. If, now, to one of these tubes a drop of highly immune serum be added, and to the other a drop of non-immune serum, or of serum immunised against some other bacillus, there will be the following differences in appearances:—In that to which the homologous serum has been added there is not merely a precipitation of the talc, but an absolute agglutination of it; the minute particles will run together, forming masses of considerable size, which sink to the bottom. On the other hand, no change whatever occurs in the other tube. It was difficult to account for this upon any purely physical hypothesis, as apart from a sort of chemico-vital action of the same general nature as coagulation by ferments.

A Case of Peritoneal Tumour.

Dr. Conolly Norman described and exhibited a case of peritoneal tumour. The growth occurred about the junction of the jejunum and ileum, and appeared to spring from the peritoneum covering the anterior wall of the intestine; it was of oval shape, about the size of a goose egg, and in colour and consistence, both externally and on section, strongly resembling a uterine fibroid. The growth had penetrated the intestine; an irregular ulcerated surface, not fungating, and about the size of a sixpence, showing in the gut. The patient died from repeated hæmorrhages from this point. No other new growths were discovered, and the uterus and ovaries appeared perfectly normal. The tumour was described as consisting of an aggregation of ovoid and spindle-shaped cells, the former having large granular bluntly ovate nuclei, the latter passing into fibrous tissue in parts. The vessels were very numerous, so that here and there the structure resembled that of an angioma. The tumour could not be made out to be continuous with muscular wall of the intestine, which it seemed to have destroyed by mere pressure, and, in the opinion of the exhibitor, was to be regarded as a sarcoma, arising probably from the peritoneal blood vessels.

DR. MCWEENEY asked Dr. Norman if he had considered the possibility of the tumour being myomatous, and that the long spindle cells might really be of the nature of unstriped muscular fibre. Such tumours occurred in connection with the peritoneum, and in this case it occurred in connection with the external coats of the bowel. The naked-eye characters appeared to point to a benign rather than a malignant tumour.

DR. R. TRAVERS SMITH was inclined to think that the specimen was a spindle-celled sarcoma, as the spindle cells were in a great many different directions, and not so even as in a myoma. Also, there were blood-vessels with a very badly differentiated vessel wall—facts which point to its being more or less embryonic in type. Possibly it might be a myoma, and have originally grown in the uterus, and become separated, and become secondarily adherent to the intestine.

DR. E. J. MCWEENEY pointed out that under the lower power large bundles of cells could be seen all running in the one direction, and crossing each other at various angles, which is one of the ordinary appearances of a fibro-myoma. Again, in all fibro-myomata which grow with rapidity, parts of them are liable to be very full of the most extremely thin-walled vessels, which accounts for the considerable hæmorrhage occurring in tumours of the kind.

DR. A. R. PARSONS agreed with Dr. McWeeney in thinking the tumour to be a myoma, and suggested that possibly it had arisen from the uterus, and became adherent to the intestine, and then lost its connection with the uterus. He thought it a very rational explanation in this case.

The PRESIDENT asked if the growth was adherent to the muscular coat of the intestine.

DR. CONOLLY NORMAN, in reply to the President, said that the tumour was not adherent to the muscular coat of the intestine. In the central portion of the tumour there was a large number of bluntly-pointed ovoid cells such as one sees in an ordinary quick-growing sarcoma. This was not shown in the sections under the microscope, but he had other sections which showed it.

Exhibits.

Dr. Coleman.—(*a*) Glioma of Cerebral Hemisphere; (*b*) Tuberculous Tumour of Cerebellum; (*c*) Abscess of Cerebellum.

After remarks by Professor O'Sullivan and Dr. McWeeney, the Section then adjourned.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

"Soloid" Carbolic Acid (Phenol), gr. 60 (3·89 grammes).

The introduction of this preparation by Messrs. Burroughs, Wellcome & Co., of London, has been prompted by a consideration of the constantly increasing use of carbolic acid as an antiseptic and the great difficulty of carrying the usual bulky solutions of this chemical. "Soloid" carbolic acid, gr. 60, enables a practitioner to carry, either in his hand-bag or in his pocket, a convenient quantity of ready weighed and quickly soluble antiseptic for the preparation of solutions of any desired strength at the moment, and in the place where they are required to be used.

A harmless artificial colouring agent has been added to "soloid" carbolic acid, and this colour distinguishes it from compressed drugs intended for internal use. The yellow colouring is communicated to the water in which solution is effected, thus rendering it unlike any other liquid in customary use at the operating table or in the sick room. A distinctive shape provides an additional safeguard. The preparation is issued in tubes containing six in each.

So many directions in which "soloid" carbolic acid, gr. 60, may be used will at once occur to our readers that it seems unnecessary to enumerate them. It may be mentioned, however, that one soloid dissolved in three quarters of a pint of water yields approximately a one per cent. solution. One dissolved in three pints of water yields a solution suitable for use as a mild disinfectant, or as an antiseptic spray for the mucous membranes of the mouth, pharynx, larynx, and nose.

"Soloid" carbolic acid is also prepared of 20 gr. strength.

The containers, which are glass bottles, should be kept tightly corked and in a cool, dry place, because phenol melts at a relatively low temperature (35° to 40° C., or 95° to 104° F.), according to the amount of moisture present.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D. Univ. Dubl.;
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Vital Statistics

For four Weeks ending Saturday, January 28, 1899.

The deaths registered in each of the four weeks in the twenty-three principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Average Rate for 4 weeks	Towns	Weeks ending				Average Rate for 4 weeks
	Jan. 7	Jan. 14	Jan 21	Jan. 28			Jan. 7	Jan. 14	Jan. 21	Jan. 28	
23 Town Districts	26·2	24·5	24·4	25·4	25·1	**Limerick** -	32·3	22·5	11·2	33·7	24·9
Armagh -	0·0	35·6	14·3	14·3	16·1	**Lisburn** -	8·5	21·3	12·8	4·3	11·7
Ballymena	28·2	39·5	16·9	28·2	28·2	**Londonderry**	36·1	33·0	23·6	42·4	33·8
Belfast -	27·3	21·3	24·8	25·5	24·7	**Lurgan** -	41·1	18·2	36·5	13·7	27·4
Carrickfergus	17·5	11·7	5·8	11·7	11·7	**Newry** -	48·3	28·2	32·2	20·1	32·2
Clonmel -	19·5	34·1	34·1	19·5	26·8	**Newtownards**	45·4	56·7	28·3	28·3	39·7
Cork -	24·2	27·7	27·0	31·8	27·7	**Portadown** -	49·5	49·5	24·7	12·4	34·0
Drogheda -	11·4	11·4	22·8	7·6	13·3	**Queenstown**	11·5	17·2	11·5	34·4	18·7
Dublin - **(Reg. Area)**	26·0	26·4	27·7	23·6	25·9	**Sligo** -	30·5	40·6	5·1	10·2	21·6
Dundalk -	4·2	16·8	8·4	20·9	12·6	**Tralee** -	5·6	11·2	44·8	16·8	19·6
Galway -	18·9	11·3	26·4	15·1	17·9	**Waterford** -	23·9	19·9	9·9	41·8	23·9
Kilkenny -	28·3	14·2	9·4	42·5	23·6	**Wexford** -	18·1	22·6	18·1	27·1	21·5

In the week ending Saturday, January 28, 1899, the mortality in thirty-three large English towns, including London (in which the rate was 15·8), was equal to an average annual death-rate of 17·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 22·1 per 1,000. In Glasgow the rate was 23·4. In Edinburgh it was 20·2.

The average annual death-rate represented by the deaths registered during the same week in the twenty-three principal town districts of Ireland was 25·4 per 1,000 of their aggregate population, which, for the purpose of this return, is estimated at 1,012,148.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 1·9 per 1,000, the rates varying from 0·0 in fourteen of the districts to 5·7 in Queenstown—the 6 deaths from all causes registered in that district comprising one from scarlatina. Among the 151 deaths from all causes registered in Belfast are 3 from measles, 3 from diphtheria, 2 from enteric fever, and 3 from diarrhœa. The 46 deaths in Cork comprise 4 from typhus, 2 from enteric fever, and one from diarrhœa. The 24 deaths in Limerick comprise 2 from measles.

In the Dublin Registration Area the births registered during the week ended Saturday, January 28, amounted to 183—99 boys and 84 girls; and the deaths to 167—94 males and 73 females.

The deaths, which are 63 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 24·9 in every 1,000 of the population. Omitting the deaths (numbering 9) of persons admitted into public institutions from localities outside the district, the rate was 23·6 per 1,000. During the four weeks ending with Saturday, January 28, the death-rate averaged 26·8, and was 8·0 under the mean rate in the corresponding period of the ten years 1889–1898.

The number of deaths from zymotic diseases registered was 18, being 3 under the number for the preceding week, and 12 below the average for the fourth week of the last ten years. The 18 deaths comprise one from scarlet fever (scarlatina), 3 from influenza and its complications, 5 from whooping-cough, one from cerebro-spinal meningitis, 5 from enteric fever, and one from erysipelas.

The weekly number of cases of scarlatina admitted to hospital, which had risen from 13 in the week ended January 7 to 19 in the following week, and 29 in the week ended January 21, fell to 18. Fifteen scarlatina patients were discharged, one died, and 95 remained under treatment on Saturday, being 2 over the number in hospital at the close of the preceding week. There were also 22 convalescents at Beneavin, Glasnevin, the Convalescent Home of Cork-street Fever Hospital.

Only 6 cases of enteric fever were admitted to hospital, being 18 under the admissions for the preceding week. Fifteen patients were discharged, 4 died, and 82 remained under treatment on

Saturday, being 13 under the number in hospital on Saturday, January 21.

Three cases of diphtheria were admitted to hospital, against 2 in the preceding week and 4 in the week ended January 14. Five cases were discharged, and 9 remained under treatment on Saturday, being 2 under the number in hospital at the close of the preceding week.

The number of deaths from diseases of the respiratory system registered was 30, being equal to the number in the preceding week, but 34 below the average for the fourth week of the last ten years. The 30 deaths consist of 19 from bronchitis, 10 from pneumonia, and one from croup.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N., Long.* 6° 15′ *W., for the Month of January*, 1899.

Mean Height of Barometer,	29·717 inches.
Maximal Height of Barometer (on 26th, 9 a.m.),	30·667 „
Minimal Height of Barometer (on 1st, 3 p.m.),	28·803 „
Mean Dry-bulb Temperature,	41·8°.
Mean Wet-bulb Temperature,	39·8°.
Mean Dew-point Temperature,	37·4°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·227 inch.
Mean Humidity,	85·2 per cent.
Highest Temperature in Shade (on 4th),	55·7°.
Lowest Temperature in Shade (on 24th),	28·3°.
Lowest Temperature on Grass (Radiation) (on 27th),	23·9°.
Mean Amount of Cloud,	61·2 per cent.
Rainfall (on 24 days),	2·483 inches.
Greatest Daily Rainfall (on 6th).	·469 inch.
General Directions of Wind,	W., S.W., S.

Remarks.

January, 1899, was a cloudy, rainy, generally open month. The weather, in a word, was essentially of a cyclonic and equatorial type. In Dublin rain fell daily in smaller or larger amount on each of the first 22 days. Then came a dry, cold period, corresponding with the presence of a large anticyclone over Western Europe. In the centre of this high-pressure system the barometer rose above 30·7 inches on the 26th. The most remarkable point about this anticyclone was the rapidity with which it took the place of a large and deep depression. On the 22nd, at 8 a.m., the barometer read 28·88 inches at Malin Head, in Donegal. Forty-eight hours later the reading at that station was 30·35 inches.

In Dublin the arithmetical mean temperature (42·7°) was above the average (41·4°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 41·8°. In the thirty-four years ending with 1898, January was coldest in 1881 (M. T.=33·2°), and warmest in 1898 (M. T.=47·8°). In 1897 the M. T. was 38·1°. As a general rule, January in Dublin is not colder, but a shade warmer than December. January, 1899, proved an exception to this rule, the M. T. being 4·9° below that of December, 1898 (47·6°).

The mean height of the barometer was 29·717 inches, or 0·157 inch below the corrected average value for January—namely, 29·874 inches. The mercury rose to 30·667 inches at 9 a.m. of the 26th, and fell to 28·803 inches at 3 p.m. of the 1st. The observed range of atmospheric pressure was, therefore, 1·864 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 41·8°, or 5·6° below the value for January, 1898. Using the formula, *Mean Temp.=Min.* + (*Max.* — *min.* × ·52), the M. T. becomes 42·9°, compared with a twenty-five years' average of 41·5°. The arithmetical mean of the maximal and minimal readings was 42·7°, compared with a twenty-five years' average of 41·4°. On the 4th the thermometer in the screen rose to 55·7°—wind, S.W.; on the 24th the temperature fell to 28·3°—wind, W. The minimum on the grass was 23·9° on the 27th.

The rainfall was 2·483 inches, distributed over 24 days. The average rainfall for January in the twenty-five years, 1865–89, inclusive, was 2·200 inches, and the average number of rainy days was 17·3. The rainfall, therefore, and also the rainy days were above the average. The record rainfall for January was in 1895—namely, 5·711 inches on 24 days. In 1876, only ·406 inch was measured on but 9 days; and in 1880 the rainfall was only ·563 inch on but 8 days. In 1898, 1·786 inches fell on 14 days.

The atmosphere was foggy on the 5th, 6th, 9th, 15th, 24th, 26th, 27th, 28th, 29th, and 31st. High winds were noted on 13 days, reaching the force of a gale on 8 days—the 1st, 2nd, 12th, 15th, 16th, 18th, 19th, and 22nd. Snow and sleet fell on the 2nd, 11th, and 17th; hail on the 2nd. Temperature exceeded 50° in the screen on 13 days; while it fell to or below 32° in the screen on 4 nights, compared with only one night in 1898, 13 nights in 1897, only 3 in 1896, 18 in 1895, 7 in 1894, 4 in 1893, 15 in 1892, 7 in 1891, and 1 night in 1890. The minima on the grass were 32° or less on 16 nights, compared with only 3 nights in 1898, 21 nights in 1897, 8 nights in 1896, 29 in 1895, 17 in 1894, 16 in 1893, 25 in 1892, 21 in 1891, and 15 in 1890.

In Dublin the rainfall up to January 31st, 1899, amounted to 2·483 inches on 24 days, compared with 1·786 inches on 14 days in 1898, 2·694 inches on 17 days in 1897, only ·720 inch on 14 days in 1896, and with a twenty-five years' average (1865–1889) of 2·200 inches on 17·3 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall was 4·395 inches on 24 days, compared with 2·345 inches on 13 days in 1898, 3·660 inches on 20 days in 1897, only ·485 inch on 7 days in 1896, and 6·190 inches on 19 days in 1895. The heaviest falls in 24 hours were ·590 inch on the 7th, and ·465 inch on the 20th.

At Cloneevin, Killiney, Co. Dublin, the rainfall was 2·93 inches on 22 days, ·37 inch being measured on the 6th. The average fall in January for the 14 years, 1885–1898, was 2·248 inches on 16·8 days. In 1895 the rainfall was 5·930 inches on 24 days, in 1896, ·700 inch on 9 days, in 1897, 3·080 inches on 20 days, and in 1898, 1·580 inches on 13 days.

At the National Hospital for Consumption, Newcastle, Co. Wicklow, rain fell to the amount of 4·760 inches on 23 days, the maximal falls in 24 hours being ·745 inch on the 7th, and ·673 inch on the 20th. The shade thermometers rose to 55·7° on the 15th and fell to 28·5° on the 28th.

DELIRIUM FROM SODIUM SALICYLATE.

Two cases of acute delirium lasting about forty-eight hours, with no fever, after the ingestion of twelve grams of the salicylate in a day and a half, have been recently reported.—*Presse Méd.*, Nov. 5.

CONTEMPORANEOUS UTERINE AND EXTRA-UTERINE PREGNANCY.

Kiriac reports a case terminating in abortion and the extraction of a fœtus from the posterior *cul-de-sac*. On account of temperature he removed the placenta and uterus later by laparotomy. The patient recovered.—*French Cong. of Gyn. and Obstet.*

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PART I.

ORIGINAL COMMUNICATIONS.

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Art. XII.—*Pneumonia.*[a] By William Whitla, M.A., M.D.; Professor of Materia Medica, Queen's College, Belfast; Physician, Belfast Royal Hospital.

To open a discussion upon a subject like pneumonia is about as difficult a task as could be undertaken by anyone. It would have been more satisfactory and profitable had the Society decided to limit the discussion to some part of the subject, such as its ætiology, symptomatology, pathology, or treatment. At the outset I feel labouring under the difficulty of touching upon any of these questions, except in the most fragmentary way, and I have the certainty before me that each one of you will think I have omitted just the point to which he attaches the greatest importance, and most of you will probably conclude that I have repeated many things which are not of primary importance to a Society like ours.

It is obviously desirable that we should confine our attention to acute croupous or acute lobar pneumonia—an acute febrile disease characterised by the presence of a peculiar form of inflammation of the lung. In the present state of our knowledge no concise definition of pneumonia can be given, and the physician, after a survey of the various definitions of the disease appearing in our text-books, asks himself—What is pneumonia? Around the answer arrange themselves all the most important views regarding ætiology, morbid anatomy, symptoms and signs, complications, prognosis, and treatment.

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[a] Read before the Ulster Medical Society.

Although Pye-Smith, in the volume of "Allbutt's System of Medicine" published a few months ago, states—"At present our knowledge is too imperfect to decide the true nature, origin, and pathology of pneumonia," nevertheless it is most encouraging to see how nearly we are approaching to actual demonstration and to notice how recent researches are clearing up the former difficulties and dispelling the erroneous views regarding the ætiology and treatment.

The view of Laennec that pneumonia was an acute inflammation of the lung, and that all the constitutional disturbance was the direct result of the pulmonary affection, can now be no longer held. We constantly see cases of pneumonia where the constitutional symptoms are for days most severe and definite before the characteristic signs appear in the lungs, and we very often find that after the patient's crisis, when the temperature is normal and the pulse and respirations are approaching closely to the normal, the physical signs of inflamed lung remain for many days just as they were when the fever and constitutional distress were at their height.

The new view that pneumonia is a specific infective fever of which the lung condition is merely a local lesion seems to be certain, and the demonstration of this fact must be of the greatest importance since only by this means can we hope to place the treatment of the disease upon a rational foundation. The proofs of the new view are to be found in the discovery of micro-organisms in the affected lung, and at these it will be necessary to glance. Through the kindness of Dr. Lorrain Smith specimens of these are placed under the microscopes on the table.

In typical croupous or lobar pneumonia in a large proportion of cases the microphyte known as the diplococcus of Fränkel can be easily demonstrated in the lung and often in the sputum. Weichselbaum found it in 94 cases out of 129 examined, and Osler states "that it is invariably found in the diseased lung." It is an oval or lancet-shaped organism, occurring generally in pairs and surrounded by a transparent capsule. It is believed to be identical with the microbe known as the micrococcus of Pasteur which Sternberg found in normal saliva of healthy subjects, and which caused pneumonia in mice and guinea pigs when injected, the microbe being found in abundance in their blood.

Another micro-organism has been described by Friedländer and is known now as his bacillus or bacterium; it is a short rod with rounded ends, and numerous observers have found it in the exudation of acute pneumonia. When injected into mice and guinea pigs it produces typical pneumonia in these animals. It has been found in acute croupous pneumonia, but in only a small percentage of the cases which were examined. Thus, in the 129 cases examined by Weichselbaum, in which the diplococcus of Fränkel was found in 94, this microbe of Friedländer was detected in only 9 patients. In a subsequent series of 70 cases Wolf found it to be present in only 3 patients. Its causative relation is, therefore, not so evident as that of the diplococcus of Fränkel, although Emmerich demonstrated its presence in the soil of a room in which there were many pneumonic patients. Eight mice died of pneumonia out of 18 which were caused to inhale the dust.

Streptococcus pyogenes is now recognised as the bacterium which produces erysipelas and which causes suppuration. It has been called the micrococcus of erysipelas and the streptococcus of pus, and it plays an important part in the complications of influenza. In the 129 cases of acute pneumonia already referred to its presence was detected in 21.

Are these organisms the cause of pneumonia as we ordinarily employ the term? There can be little doubt in the case of Fränkel's diplococci, although Pye-Smith points out three objections to this view. Thus they are not invariably found in the affected lung; they are found in other situations in health; and, thirdly, when injected in a pure cultivation they do not invariably reproduce themselves and cause fresh hepatisation of the lungs. These three points it will be remembered are insisted upon by Koch as proofs of the specific nature of a pathogenic organism. But it will be obvious that better methods may cause these objections to disappear, and already most observers practically agree that this microbe is so constantly present even in the sputum that its measure may be taken as a valuable aid in the diagnosis of pneumonia.

If we accept the universal presence of micro-organisms in the affected lungs and in the blood or other organs, it is therefore manifest that pneumonia should cease to be regarded as a pulmonary affection and should be classed as a fever with the pulmonary phenomena as the mere local manifestation of the general blood disorder. The analogy would be complete could it be shown that there were other organs affected, and more especially if it could be demonstrated that the pulmonary manifestation so frequently present was sometimes absent; in other words, if it could be shown that we can occasionally have the constitutional specific symptoms without pneumonia. This has been done by Washbourne, who has published cases in which it is demonstrated that the diplococcus of Fränkel has produced acute pleurisy or empyema without affecting the pulmonary tissue. In one typical case where there were herpes, high temperature, delirium, cough, rapid breathing, and all the characteristic appearances of pneumonia, the patient died and the pulmonary tissue was found to be unaffected. The symptoms were certainly produced by the toxins formed by the diplococcus of Fränkel, which was found in the pus contained in the pleural cavity. The microbe was examined by the microscope, by cultivation, and by inoculation. He reports other cases.

This one case, if we had no other, demonstrates that pneumonia is an acute specific fever, and that the inflammation of the lung is a very frequent but not a constant lesion.

Pye-Smith states in the recent article in "Allbutt's System," when writing upon the question of acute pleurisy being caused by the diplococcus of Fränkel, "If in such cases the lung really remains unaffected and is found after death anatomically sound, while the pleura is the seat of a specific diplococcous inflammation, our notion of the disease pneumonia will be much modified; we shall have to admit it without reserve among the specific fevers and to regard the inflammation of the lung as a very frequent but not a constant lesion."

In the great majority of cases, then, it must be conceded that the specific diplococcus is the cause of pneumonia; but it must not be forgotten that it differs from diseases like typhus and small-pox in being *generally* sporadic and in not protecting the patient from previous attacks.

But what about the other organisms found in pneumonia? In Weichselbaum's 129 cases other organisms were found in 35 cases. These, as already stated, were Friedländer's bacillus, Streptococcus pyogenes, and Staphylococcus pyogenes aureus, the last microbe being found only five times, whilst the diplococcus was detected 94 times. It would seem as if we are bound to consider each of these microbes as capable of producing a pneumonia more or less closely resembling the typical form produced by Fränkel's organism.

In a most valuable paper, read about a year ago before the Royal Academy of Medicine in Ireland, by Dr. J. W. Moore this question was ably discussed. The title of his contribution shows at once his answer to the question—"Pneumonia: A Multiple Infection."

It has been long noticed that a form of pneumonia attacked the lungs of patients suffering from erysipelas, especially that variety known as wandering or vagrant erysipelas, which often runs a protracted course and affects the pharynx, larynx, and bronchi, ending in pneumonia. Moore relates an interesting case where matters were reversed and a patient who was suffering from pneumonia migrans developed erysipelas. Several such cases have been reported, and before the discovery of the microbe of erysipelas such cases were called erysipelas of the lung. This form of pneumonia is recognised as differing from the typical characters of ordinary croupous or lobar pneumonia, and I think it can be easily recognised at the bedside during life, and has been diagnosticated by everyone in this room during the last six months. It is the pneumonia caused by the Streptococcus pyogenes, and it has been demonstrated that this parasite it is which causes the pneumonia of influenza, about whose characteristics I shall speak presently.

J. W. Moore insists that the bacillus of tubercle causes a true pneumonia—the so-called acute tuberculo-pneumonic phthisis, or scrofulous pneumonia, or acute phthisis, which is totally different from acute tubercular fever. I have seen only one really typical case of this and it exactly corresponded to Theodore Williams's description of this terrible malady, and the consolidation of the lung was of a markedly pneumonic type and of an unmistakably inflammatory nature. Moore also is satisfied that the typhoid bacillus may cause a true croupous pneumonia, and he believes that this may be taken when it supervenes as evidence that the typhoid poison had obtained its entrance into the body by the pulmonary route. The typhoid epidemic in Dublin early in September last, he states, assumed a distinctly thoracic form, and he has published cases which go to prove that the cases of pneumonia which occurred at that time were caused by a specific poisoning by Eberth's bacillus, the interesting point being that the pneumonia occurred at the beginning of the attack of fever and not at the end of it, as takes place when the pneumonic consolidation is caused by a secondary infection with the diplococcus of Fränkel.

Moore concludes his paper by stating that there is clinical evidence to show that a true pneumonia may occur in—erysipelas, influenza, tuberculosis, and enteric fever, in each case directly due to a localisation in the lung of the specific micro-organism itself or a toxin derived therefrom. It must, however, be mentioned that in the cases of so-called thoracic typhoid no demonstration of the typhoid bacillus has been made from the sputum or lung.

From clinical observations alone I have been satisfied for many years that pneumonias frequently differ from each other more than could be reasonably accounted for by the theory of the personal equation, and some of my old pupils present may remember that in the hospital wards I have insisted upon their accepting it that pneumonia was but a *symptom* of several different diseases; perhaps this was overstating it, however. Doubtless other forms of microbe will be discovered, especially in the epidemic forms of the disease. Thus, in one recent epidemic of pneumonia in Middlesborough Klein discovered a bacillus different from those enumerated. A study of these epidemics shows a marked variety in the symptoms, mortality, method of spreading, and other features, strongly suggestive, in the absence of bacterial evidence, that they are caused by different microbes. The importance of the subject lies in the consideration of how far we can go in recognising the different forms of the disease at the bedside. I would venture to suggest that when we meet the orthodox pneumonia in an adult with its classical symptoms, we are fairly safe in assuming that we are dealing with the fever caused by Fränkel's micrococcus. In such a case we shall probably find a sudden onset with costal pain and fever, often commencing with a rigor; fine crepitation, generally confined to inspiration, will be heard over the base of the lung almost as soon as we examine the first time. My experience is that this is nearly always present in every case if we take care to examine the borders of the affected region frequently. The lung rapidly passes into the stage of hepatisation, with bronchial breathing or tubular breathing; the respirations increase in number, herpes appears on the face, the temperature after the first 24 or 36 hours' rise shows a markedly continuous type, and the area of the consolidated lung shows little tendency to enlarge, keeping in general terms within the range of the limits of the lobe first affected. The sputum is of the characteristic rusty type, and the total physical signs show little tendency to change, or undergo, as a rule, little alteration after the second or third day till after the crisis, which generally appears about the seventh or eighth day or may be prolonged into the tenth. A little pleurisy is, perhaps, always present.

Dr. Thompson, of the Bellevue Hospital, has pointed out that of late years lobar pneumonia often fails to follow this definite course, and, in his opinion, it departs widely from its characteristic clinical symptoms and notably its duration; and he is probably correct in surmising that these alterations are in some way depending upon the advent of influenza ten years ago.

This brings us to the next step—the consideration of the clinical features of the pneumonia of "grip." As already stated, recent opinions are in favour of this form of pneumonia being identical with erysipelas of the lung, and several authorities, including Finkler, maintain that it is the result of the specific infection of Streptococcus pyogenes. It is, however, more probably a mixed infection, in which the streptococcus plays the most prominent part. Finkler found it always present in every case wherever micro-organisms were capable of demonstration, and he states that in 45 cases of influenzal pneumonia he regarded 43 of them as streptococcic and only two as true lobar pneumonia.

Leyden, of Berlin, found three types of influenzal pneumonia—*i.e.*, the simple streptococcic, the true croupous in which Fränkel's diplococcus was present, and mixed forms, these latter often being complicated with pleural inflammation. No observations about the presence or absence of the influenzal bacillus in the lung are available. Whatever may be the exact bacteriological features of this form of pneumonia, there can be little, if any, doubt of its clinical characteristics. Its onset is often sudden, and the temperature may bound up with alarming rapidity; there is often no marked pleural pain or herpes or rusty sputum, and for three or four days there may be absolutely no physical sign of pulmonary mischief. This was very marked in a case seen lately with Dr. Austin, where, I think, crepitus appeared only at the end of the fourth or beginning of the fifth day. When the physical signs do appear they are those of croupous pneumonia, but they differ widely from it in distribution. In the first great epidemic I nearly always found that fine crepitus was soon followed by tubular breathing, indicating consolidation; but this was confined to islands of pulmonary tissue, separated from each other by portions of healthy lung, or by lung the seat of œdema or bronchial catarrh. The consolidation spread indefinitely in a mean and treacherous manner, very different from the honest trend of a true croupous pneumonia. One always found in the evening that it was not where you had left it in the morning, and upon the next day some other region was involved, not rarely the opposite lung being invaded during the night. It suggested to me several times the peculiar characteristic of a syphilitic eruption, which we call polymorphism, though the resemblance is purely fanciful. Thus, within an area not much larger than the palm one could hear nearly every common variety of chest sound by moving the stethoscope about, from fine pneumonic crepitus, submucous râles, and coarse ronchi to tubular or bronchial breathing with consonating râles. The expectoration was sometimes profusely purulent or muco-purulent, and sometimes entirely absent; dulness of percussion note was seldom well marked, and this moved about so that one doubted and lost confidence in the accuracy of the previous observation. The duration varied greatly, often much longer than the typical pneumonia of seven or eight days.

There is, however, one clinical feature of influenzal pneumonia which is singularly omitted from Moore's description, and which is absent in the reports of the German observers. This is, to my mind, the most remarkable and most important characteristic of the disease. I chanced to note it early in the 1890 epidemic and communicated it to the editor of the *B. M. J.* The pneumonia of "grip" is markedly contagious. I believe that only in one or two instances during that great epidemic did I find that there was absence of evidence of the affection attacking some of those coming into contact with the affected person. Two and three, and in one instance, in an isolated residence along the shore of Lough Neagh, there were five cases of pneumonia in one household where the disease appeared. It seemed to attack those who had already passed through influenza, those who were suffering from it, and those who appeared to have escaped. But the point I wish to make clear is that it is the pneumonia itself which is contagious independent of grip.

In the case already mentioned under the care of Dr. Austin a few weeks ago, where the physical signs were so long in appearing and we had a doubt about the exact form of the pneumonia, I said if this be the pneumonia of grip we shall have another case in a few days, and within forty-eight hours the patient's mother, who was in constant attendance upon her, showed the signs of a severe pneumonia, which, however, more closely followed the type of the croupous variety. I did not find the mortality in my own cases to be as high as in the ordinary lobar form, but this was probably an accident, as I saw few cases in elderly subjects; the most of these, however, were rapidly fatal.

With the question of secondary pneumonia, as seen in Bright's disease, typhoid, measles, and diabetes, it is unnecessary to deal. These forms of the disease are probably identical in pathology or bacteriology with those already referred to, and the clinical features of these are always more or less modified by the symptoms of the primary disorder. The modifications observable might well demand another paper, especially the symptomatology of diabetic pneumonia, where the disease is strangely latent, and where the temperature is occasionally very low.

These remarks are intended simply as an introduction to the more practical subject of the treatment of pneumonia, especially to some speculations upon the serum-therapy of pneumonia as viewed in the light of the specific nature of pneumonic fever being the direct result of the toxin of a particular microbe. The subject of treatment is, however, far too wide to be dealt with on an occasion like the present, and I would venture to suggest to the Council of the Society the advisableness of having a discussion upon this most important branch of therapeutics at an early date.

ART. XIII.—*The Prevalence of Tuberculosis in Ireland, and the Measures necessary for its control.*[a] By T. W. GRIMSHAW, C.B., M.A., M.D.; Ex-President Royal College of Physicians of Ireland; Registrar-General for Ireland.

(*Continued from page 176.*)

THE figures I have quoted are sufficiently serious, but when we consider the question of the ages at which these tuberculous diseases are most fatal we find still more alarming results. In the case of death-rates there may be some errors owing to unestimated variations in population since the last Census, but when we consider the deaths from tuberculosis in relation to those from all causes, this element of doubt has little or no significance.

I shall first deal with the question of tuberculosis as it affects young children—by this I mean children under 5 years of age. It has been shown by Sir Richard Thorne,[b] and by the Report of the British Medical Association, that the tendency to the decrease of tuberculosis among young children in England and Wales is not so marked as it is in the case of phthisis; this is one element of importance. Another point of importance is that the prevalence of tuberculosis among young children is attributed, and no doubt correctly, to the fact that milk constitutes a large portion of their food. The forms of tuberculosis which kill young children are tabes mesenterica, tubercular meningitis, and forms of tubercle other than pulmonary consumption. We find that in Ireland the death-rate of children under 5 years

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[a] Read before the Section of State Medicine of the Royal Academy of Medicine in Ireland, February 17, 1899.

[b] The mortality from tuberculosis in early childhood is not decreasing as it is at other ages in the United Kingdom, and the opinion that this great prevalence of the disease in infancy and childhood is due to infection through the alimentary canal by milk from tuberculous cows appears to be well founded. The following table, showing the mean death-rates from *tabes mesenterica* in England and Wales among infants under one year of age per million living, is given by Sir Richard Thorne in his second Harben Lecture:—

1851-60	3,160	1881-85	4,856
1861-70	3,800	1886-90	4,462
1871-80	4,467	1891-95	4,046

(Report of British Medical Association, *British Medical Journal*, 28th January, 1899.)

of age from these forms of tuberculosis was 3·5 per 1,000 living at this age period. In the districts with towns of 10,000 and upwards the rate was 8·7, as compared with 2·0 in country districts, or more than four times the rate; in the six large towns taken collectively it rises to 9·4—in Dublin it reaches 11·0, and in Belfast 10·0; in the others it is considerably below the 10,000 towns rate, the rate for Limerick being only 3·3, or less than the average rate for Ireland. The very high proportion of deaths in Dublin and Belfast is very remarkable and very serious.

If we now pass to the more active periods of life, and consider the deaths from tuberculosis between the ages of 15 and 45, the main working period of life, we find that in Ireland during these ages the death-rate from tuberculosis of all kinds was 3·8 per 1,000 living at these ages (out of a total rate of 7·9 from all causes, being nearly one-half) of which the phthisis rate was 3·5. In the districts with towns of 10,000 and upwards the rate was 5·5 out of a total rate of 12·2, of which the phthisis rate was 5·1. In the six large towns the rate was 5·7 out of a total rate of 12·6, phthisis having a rate of 5·3. It will be observed in the foregoing statement the death-rate from phthisis dominates the whole series of figures, and therefore we may confine our attention in detail to the proportion of deaths from that form of tuberculous disease, and here I shall deal only with the proportion of deaths from phthisis to the total number of deaths, as showing in the clearest manner the immense amount of damage done by phthisis at the most active periods of life in Ireland.

It will be observed that by aid of the latter columns of the table the number of deaths from phthisis in every 100 deaths from all causes at certain age periods—viz., 15-35, 15-25, 25-35, and 35-45—can be compared with the total deaths from phthisis at the ages 15–45.

I am bound to say that the results exhibited in this table have taken me somewhat by surprise, for they show that the proportion of the people of the adolescent and the active adult ages who die of pulmonary consumption in the country districts of Ireland surpasses my worst anticipations.

An examination of the table shows that at all the age periods from 15 to 45, except that between 35 and 45, the proportion of deaths from phthisis to total deaths in the country districts exceeds that in the town districts (those having towns with populations of 10,000 and upwards) when taken collectively, and that this is also true of the country districts when compared with the districts having towns with a population of 20,000 and upwards.

Taking Ireland as a whole we find that during the whole age period of 15 to 45 the deaths from phthisis constituted 43·5 per cent.; in the period from 15 to 35, 49·6 per cent., or nearly one-half; in that from 15 to 25—which is apparently the most fatal 10 year period—52·8 per cent., or more than one-half; from 25 to 35, 46·1 per cent.; and from 35 to 45, 29·1 per cent., compared with a total for all ages of 11·7 per cent. of the total deaths.

I do not think it necessary to analyse all the figures in these columns, but it is important to emphasise the fact that in Ireland the age at which phthisis causes the greatest proportion of the total mortality is the period from 15 to 25, and to point out that the percentage of deaths to total deaths during this period reaches the terrible total of 44·6 per cent. in Dublin, 55·4 per cent. in Belfast, 54·4 per cent. in Cork, 56·3 per cent. in Limerick, 52·5 per cent. in Londonderry, and no less than 58·6 per cent in Waterford. In the next decade of life, 25 to 35, the percentages fall somewhat in each case, but are still so near one-half of all the deaths at that age as to excite considerable alarm as to the ultimate result to what ought to be the most active portion of the community.

I would again point out that this table is founded on the most recent information available at the present time.

The methods by which tuberculosis spreads are now sufficiently well known, and have already been indicated in this paper. They may be classed under two heads:—

1. From man to man by the expectoration from phthisical patients, by discharges from the bowels and sores of persons suffering from other forms of tuberculosis.

2. From animals to man—

(*a*). Through the consumption of tuberculous milk (especially from cows with diseased udders) and meat.

(*b*). By discharges from animals affected by tuberculosis.

With reference to the limiting of the spread of tuberculosis from human sources, I would first insist on general sanitary measures—cleanliness of every kind, the letting in of air and light into crowded neighbourhoods in large towns, the securing of ample cubic space (not the mere 300 or 400 cubic feet which now seems to satisfy sanitary authorities), ventilation and sunlight in dwellings.

The next is to cut off and destroy the contagious material itself. This may be done by isolation of affected persons, and the destruction of all material which may be a vehicle for the conveyance of the tubercular bacillus.

The general proposal of isolation of infected persons must not be taken in the sense that is conveyed when isolation of cases of "dangerous infective diseases" is spoken of. In many cases it does not even mean separation of the sufferers from their own home-surroundings. In the cases of those who are provided with ample house accommodation and access to plenty of fresh air by efficient ventilation, open windows, and a large proportion of time spent in the open air, isolation need rarely be carried beyond the interdicting of sleeping in the same rooms, and especially in the same beds, of the infected and non-infected. With such persons the main precautions consist in the destruction of all discharges from the infected persons—in the case of phthisis the expectoration should be carefuly collected in suitable receptacles charged with disinfectants, and destroyed—the dispensing with all appliances, such as upholstered furniture and hangings, which tend to accumulate dust which may possibly harbour the tubercular bacillus in its dried form; and the careful disinfecting of all clothing, handkerchiefs, towels, &c., used by the infected persons.

In the case of those with but small house accommodation, or the dwellers in cottages and tenement houses where the requirements I have just alluded to cannot be fulfilled, it appears to me that hospital isolation is the only method for providing the necessary conditions of safety for the healthy, and chance of cure or improvement for the sick. Such hospital accommodation should be provided for, in the case of those who can pay, in paying sanatoria of the home hospital character; for the artisan and labouring classes (as at present for other diseases) by voluntary charities, and in the case of the very poor at the expense of the rates. The method of provision for the two former classes seems obvious and has been already adopted to some small extent. In the last case, which was dealt with by the second paragraph of the Carlisle resolution—viz., the poorer class—this is not so obvious. It would be unreasonable to expect, and I believe, in the vast majority of instances, inadvisable for, Sanitary Authorities or Poor Law Guardians to provide special hospitals for the isolation and treatment of consumption. In very many cases the authority would be unable to find within or near its own district a place suitable as to site and surroundings for such an institution.

I believe it will be found that the best method of providing for poor persons affected by tuberculosis would be the payment by the local authorities for the treatment of the patients of their district in specially-arranged voluntary hospitals.

This plan would, I believe, be the cheapest and also the pleasantest for the affected persons. There seems to be no doubt that in England and Ireland the power to do this is possessed by Sanitary Authorities and Poor Law Guardians. In Scotland I am afraid this is not so. The details necessary for the carrying out of these suggestions would require long and very careful consideration, which it would be out of place to enter upon here. In all cases admitted to hospital the houses or rooms in which the patients have resided should be thoroughly cleansed and disinfected, so as to destroy all traces of the fatal bacillus. It is clear that this duty of cleansing and disinfecting houses must be discharged by the Sanitary Authority.

The next important question is how is the Sanitary Authority to become aware of the existence of cases of tuberculosis? This at once raises the question—Is tuberculosis to be a compulsorily notifiable disease? To the latter question I answer in the negative, and I believe the bulk of the medical profession and nearly the whole of the public will agree with me.

I consider tuberculosis so widely diffused that if an inquiry were made into every doubtful case the number of cases discovered would be so great that a very large proportion of the population would be notified as sufferers, the Sanitary Authrities would be overpowered with the work of dealing with this particular disease, and the public would so resent the interference that the attempt would be a gigantic failure. I, therefore, think compulsory notification of tuberculosis impracticable, and that it should not be attempted.

I consider, however, that all cases of death from phthisis, cases of removal to hospital, and all cases which may come to the knowledge of public medical officers, should be brought under the notice of the Sanitary Authorities.

How are the medical attendants of the sick, either poor or rich, to be absolutely certain that they are dealing with cases of tuberculosis, so as to give the necessary warning of danger to the patients and their friends, and thus enable them or the Sanitary Authorities to take the steps I have indicated to prevent the spread of the disease?

The answer to this is to be found in the first part of the Carlisle resolution which I have already quoted—viz., the provision of bacteriological laboratories by Sanitary Authorities. This may be done in a manner similar to that suggested for hospitals—that is, let Sanitary Authorities have recourse to the laboratories provided in great centres or at special hospitals, paying only for the use they make of them, but let the use of these laboratories be free to all medical men requiring sputum, &c., to be examined. Many such laboratories now exist and could at once be utilised.

It would be out of place here to discuss the treatment of tuberculosis, but it is now well known that phthisis and other forms of tubercular disease are curable, and the success which has attended the treatment of phthisis by fresh air, and, as far as practicable, open air, proves that no time should be lost in extending the accommodation for the treatment of phthisis which already exists, and adding new hospitals where they may be required.

The question of the prevention of the infection of human beings through the agency of food has, as I have already mentioned, been considered by the Royal Commission of 1896, which reported so lately as April, 1898. Thus the latest and most authoritative information is available on this point. I consider I cannot do better than quote the principal portions of the recommendations of the Commission as indicating the necessary measures of prevention in this direction.

Regarding Slaughter-houses the Commissioners recommend:—

1. That in all towns and municipal boroughs in England and Wales, and in Ireland, powers be conferred on the authorities similar to those conferred in Scotland:—

(*a.*) When the local authority in any town or urban district in England and Wales and Ireland have provided a public slaughter-house, power be conferred on them to declare that no other place within the town or borough shall be used.

A period of three years to be allowed for making the change.

(*b.*) The local authorities be empowered to require all meat slaughtered elsewhere than in a public slaughter-house, and brought into the district for sale, to be taken to a place or places where such meat may be inspected.

(*c.*) That when a public slaughter-house has been established inspectors shall be engaged to inspect all animals immediately after slaughter, and stamp the joints of all carcases passed as sound.

2. Special arrangements are recommended for London.

3. With regard to slaughter-houses in rural districts, the case is not so easy to deal with. But the difficulty is one that must be faced, otherwise there will be a dangerous tendency to send unwholesome animals to be slaughtered and sold in small villages where they will escape inspection. The Commissioners recommend, therefore, that in Great Britain the inspection of meat in rural districts be administered by the

County Councils. In Ireland the duty of carrying out inspection ought to devolve upon authorities corresponding as nearly as possible to those charged with that duty in England and Scotland.

4. That it shall not be lawful to offer for sale the meat of any animal which has not been killed in a duly licensed slaughter-house.

QUALIFICATIONS OF MEAT INSPECTORS.

5. The Commissioners recommend that in future no person be permitted to act as a meat inspector until he has passed a qualifying examination, before such authority as may be prescribed by the Local Government Board (or Board of Agriculture).

The Commissioners give a syllabus of the subjects of examination.

TUBERCULOSIS IN ANIMALS INTENDED FOR FOOD.

6. The Commissioners recommend that the Local Government Board be empowered to issue instructions from time to time for the guidance of meat inspectors, prescribing the degree of tubercular disease, which, in the opinion of the Board, should cause a carcase, or part thereof, to be seized.

Pending the issue of such instructions the Commissioners are of opinion that the following principles should be observed in the inspection of tuberculous carcases of cattle:

(*a.*) When there is miliary tuberculosis of both lungs - -	The entire carcase and all the organs may be seized.
(*b.*) When tuberculous lesions are present on the pleura and peritoneum - - - -	
(*c.*) When tuberculous lesions are present in the muscular system, or in the lymphatic glands embedded in or between the muscles	
(*d.*) When tuberculous lesions exist in any part of an emaciated carcase - - - - -	

(*a.*) When the lesions are confined to the lungs and the thoracic lymphatic glands - - -	The carcase, if otherwise healthy, shall not be condemned, but every part of it containing tuberculous lesions shall be seized.
(*b.*) When the lesions are confined to the liver - - - -	
(*c.*) When the lesions are confined to the pharyngeal lymphatic glands - - - - -	
(*d.*) When the lesions are confined to any combination of the foregoing, but are collectively small in extent - - - -	

In view of the greater tendency to generalisation of tuberculosis in the pig, the Commissioners consider that the presence of tubercular deposit in any degree should involve seizure of the whole carcase and of the organs.

In respect of foreign dead meat, seizure shall ensue in every case where the pleuræ have been "stripped."

It will be observed that in the foregoing recommendation there are certain conditions under which "the carcase of otherwise healthy animals shall not be condemned," but the tuberculous portions seized.

I think it well to quote the previous statement of the Commissioners regarding the disposal of the flesh of animals affected by tuberculosis which may still be considered fit for human food:—

"When, some years ago, tuberculosis in human beings and other animals was first proved to be interchangeable, we think that an exaggerated view was taken of the extent of the danger arising from meat, and that this view is still acted on in certain places. Undoubtedly we are not prepared to recommend that indiscriminate traffic in tuberculous meat should be permitted, or that inspection should be more lax than it is at present. On the contrary, we strongly urge that inspection should not only be more general and systematic, but that all inspectors should be qualified by special training. We hold, however, that it should be conducted on better defined principles, and that some limit should be observed in the latitude permitted to medical or veterinary officers in fixing independent standards of soundness in different places.

"The recommendation on this subject which we shall place at the close of this Report will be much on the lines of the resolutions passed at the International Veterinary Congress held at Berne in 1896. We bear in view the remarkable returns of the results of rigid but discriminating inspection in 29 towns in Saxony during the year 1895. Meat Inspectors at the public abattoirs in these towns are all qualified veterinary surgeons. Tuberculosis was found to exist in 22,758 carcases (being 27·48 per cent. of the whole number slaughtered). The whole of these according to the practice of some authorities in this country would have been confiscated and destroyed without compensation. But in Saxony they were dealt with as follows: Of the total number of 22,758 carcases showing tuberculous lesions 21,062, or 92½ per cent., *were passed as fit for food;* 1,256 carcases, or about 5½ per cent., were disposed of in the Freibank as inferior meat, at a fixed cheap rate; and the remaining 440 carcases, or 2 per cent. of the whole number pronounced tuberculous in a greater or less degree, were condemned as unfit for food and destroyed.

"We have been favourably impressed with the value of the peculiar institution known in Germany as the Freibank and alluded to in the last paragraph. It is a department of the slaughter-house where meat of carcases affected by disease, but not to such an extent as to render it unfit for food, is exposed for sale. It is sold at about half the market rate in portions not exceeding 10 lbs. to each customer, either having been sterilized by exposure to steam for half an hour, at a temperature of 100° C., or, where the quality of the meat is considered to warrant it, in a raw state. No butchers, meat salesmen, or restaurant keepers are allowed to purchase at the Freibank, but many poor people, who would otherwise have to go without meat altogether, are able to buy cheap and not unwholesome meat at a very low rate, and the demand is usually found to exceed the supply. Under an efficient system of inspection, we regard the Freibank as a most desirable adjunct to a public slaughter-house, and one that would protect the poor from the unwholesome supplies at present obtained in some of our large towns from the lowest class of butchers."

It is scarcely necessary to point out that the sale of any portion of a tuberculous carcase for human food should be guarded with special precautions. It seems these are fulfilled by the Friebank arrangements carried out in Saxony, but which I am afraid would not be acceptable in this country.

To continue the recommendations of the Commissioners:

DISEASES IN THE UDDERS OF COWS.

7. We recommend that notification of every disease in the udder shall be made compulsory; under penalty, on the owners of all cows, whether in private dairies or those of which the milk is offered for sale.

8. We recommend that for the purpose of excluding from their districts the milk of cows affected with tuberculosis of the udder, or exhibiting clinical symptoms of the disease, local authorities should be given powers somewhat similar to those of sections 24-27 of the Glasgow Police (Amendment) Act, with power to slaughter such cows subject to compensation under the conditions named in the Report.

9. We also recommend that powers shall be given to local authorities to take samples and make analyses from time to time of the milk produced or sold in their districts, and that milk vendors shall be required to supply sufficient information as to the sources from which their milk is derived.

At ports where milk and milk products are received from foreign countries, any costs that may be thus incurred in their examination shall be borne by the importers.

COWSHEDS, BYRES, &C.

10. We recommend that the Local Government Board be empowered to require local authorities to adopt regulations as to dairies, cowsheds, &c., where that shall be found not to have been done already.

11. That in future no cowshed, byre or shippon, other than those already registered, shall be permitted or registered in urban districts within 100 feet of any dwelling

house; and that the discontinuance of any one already existing shall be ordered on the certificate, either of the medical officer of health that it is injurious to the health of human beings residing near it, or of the veterinary inspector that it is not a place wherein cows ought to be kept for the purpose of milk supply, and that it is incapable of being made so.

12. That the conditions of the attached cowsheds that shall warrant the registering of a dairy in a populous place, whether technically urban or rural, in the future shall include the following:—

1. An impervious floor. 2. A sufficient water supply for flushing. 3. Proper drainage. 4. A depot for the manure at a sufficient distance from the byres. 5. A minimum cubic contents as regards such districts of from 600 to 800 feet for each adult beast varying according to the average weight of the animals. 6. A minimum floor space of 50 feet to each adult beast. 7. Sufficient light and ventilation.

While we have prescribed a minimum cubic contents and floor space without mentioning definite dimensions affecting ventilation and lighting, we are distinctly of opinion that these are by far the most important, and that requirements as to cubic and floor space are mainly of value as tending to facilitate adequate movement of air.

Existing cowsheds should be obliged to conform to the prescribed regulations within a period of twelve months from the time of the regulations coming into force.

13. The same conditions as those recommended for populous places should apply to cowsheds in sparsely populated places, except in so far as cubic contents per cow are concerned [with certain relaxation to suit circumstances].

14. We recommend that where cows housed in one district supply milk to another district, the local authority of the district in which the cows are housed shall be bound, when required, to supply to the local authority of the district in which the milk is sold or consumed full information and veterinary reports regarding the condition of the cows, byres, &c., whence the milk is drawn. Where the local authority of one district are dissatisfied with the reports so obtained,

they may apply to the Local Government Board, with a view to an independent inspection and report being made.

ELIMINATION OF BOVINE TUBERCULOSIS.

15. We recommend that funds be placed at the disposal of the Board of Agriculture in England and Scotland and of the Veterinary Department of the Privy Council in Ireland, for the preparation of commercial tuberculin, and that stockowners be encouraged to test their animals by the offer of a gratuitous supply of tuberculin and the gratuitous services of a veterinary surgeon on certain conditions.

These conditions shall be:—

(*a*.) That the test be applied by a veterinary surgeon.

(*b*.) That tuberculin be supplied only to such owners as will undertake to isolate reacting animals from healthy ones.

(*c*.) That the stock to be tested shall be kept under satisfactory sanitary conditions, and more especially that sufficient air space, ventilation, and light be provided in the buildings occupied by the animals.

16. We recommend that the Board of Agriculture in England and Scotland and the Veterinary Department of the Privy Council in Ireland undertake the circulation among agricultural societies of instructions for the proper use of the tuberculin test, with explanation of the significance of reaction, and directions for effective isolation of reacting animals."

I think it well here to refer to a point in connection with the tuberculin test which may escape the notice of some. In the Report of the Royal Commission of 1890-94, in the evidence of Professor McFadyean, it is stated that in his hands the tuberculin test has frequently led to erroneous inferences, although he expresses confidence in its general utility. In the Report of the Commission of 1896, however, this point is cleared up, and the Commissioners accept the reliability of the test. The evidence of Professor McFadyean in this connection, before the 1896 Commissioners, is as follows:—

"No person, whether he were a layman or a veterinary surgeon, when summoned to look at an animal suspected of showing symptoms of tuberculosis, could give an opinion that was really of much value in the great majority of cases unless he used tuberculin. We have all recognised that within recent years. If the animal is in the very last stage of the disease one may make a diagnosis that has little chance of error, but in the great majority of cases it is only a guess. With tuberculin it is practically a certainty. I should like, if I am not going too fully into that, to give evidence regarding the reliability of tuberculin as a test. I made a number of experiments on that, and reported them to the previous Royal Commission. These, however, were not entirely favourable to the use of tuberculin, because in a considerable proportion of cases the indication afforded by the tuberculin was wrong. But since that, experiments and observations made in somewhat different circumstances have yielded entirely different results, and I have the most implicit faith in tuberculin as a test for tuberculosis, when it is used on animals standing in their own premises, and undisturbed. It is not a reliable test when used on cattle in a market, or on any cattle that have been shipped, or trained, or otherwise excited. That has been found out since I made my Report. Other observers have had similar results under similar circumstances. Unfortunately the Royal Commission set apart a very small sum to test this question of diagnosis; I think it was £100. Tuberculin was only newly introduced then, and I could not get anybody who would submit his cows to the test. It was only through the kindness of Professor Brown, who allowed me to use the test on animals condemned under the Pleuro-Pneumonia Slaughter Order, that I was able to make the test. I got these animals in slaughter-houses, and after they had been trained, or otherwise brought there, tested them. Then they were killed next day, and a considerable proportion of errors were found. But since that, using it on animals in their own premises, I have found that it is practically infallible. I have notes here of one particular case that I might put in, where in a dairy 25 animals in all were tested, and afterwards they were all slaughtered. There was only one animal that did not react, and it was the only animal not tuberculous when they were killed."

I have to express my full concurrence in all these recommendations of the Commissioners except, possibly, that which relates to the sale for food of portions of tuberculous animals, which does not appear to me to be sufficiently safeguarded. It is right to add that there is a memorandum or supplemental report by three of the Commissioners, in which they recommend that compensation should be granted to persons whose meat may be seized on account of the presence of tuberculosis. There was a considerable amount of evidence laid before the Commission supporting the view put forward in this supplemental report. I do not propose to discuss the question of compensation, it being somewhat out of place here, but I quite agree with the view that compensation should be made for meat compulsorily seized. The limitations suggested seem fair, and also appear to fully satisfy the Butchers' Association of the United Kingdom, of which Mr. Field, M.P., is Chairman.

I hope I have said enough to convince the Academy that the great prevalence and destructiveness of tubercular disease constitute a most formidable danger to the public health, and I would appeal to all members of the Academy to use their efforts to further the movement for the Prevention of Consumption and other forms of tuberculosis, which, now that it has gained some hold on public opinion, has every prospect of meeting with a large measure of success.

In conclusion, I have to return my thanks to Mr. P. J. O'Neill, the Superintendent of the Statistical Branch of the General Register Office, for his kind assistance in arranging and revising the statistical portion of this paper, and in the correction of the proofs.

ART. XIV.—*Notes of some Rare Clinical Cases.*[a] By JAMES ALEX. LINDSAY, M.A., M.D., M.R.C.P.; Physician to the Royal Hospital, Belfast.

Case of Ulcer of Œsophagus, Mediastinal Abscess, and Superficial Emphysema.

CASE. I.—John C., traveller, aged fifty-nine, was admitted into the Royal Hospital upon Feb. 7, 1899. He had an attack of "blood-poisoning" twenty years ago, but otherwise had enjoyed excellent health. For some time past he had been suffering from pain in both lumbar regions, to which he did not pay much attention. During the first week of Feb. he had taken a good deal of drink; his appetite had been impaired, and the bowels rather relaxed. At eight o'clock a.m. on Feb. 7 he took 14 drops of laudanum; at ten o'clock a.m. he drank a bottle of stout, and was suddenly seized with severe pain in the epigastrium and vomited. He came to hospital at eleven o'clock and was admitted.

On admission the temperature was found to be 100°. The patient complained of pain in the epigastrium; the general condition was fairly good; the urine was found to contain a large quantity of sugar and a little albumen, and there were signs of effusion into the right pleura; the respirations were hurried; the abdomen was slightly distended and tender on palpation in the epigastric and in both lumbar regions.

The patient's condition throughout the day did not undergo any material alteration. Towards midnight his state began to change for the worse. For the first time a slight swelling was observed in the left eyelids, which proved to be subcutaneous emphysema. In a short time the eyelids became much distended, the eye completely closed, and the emphysema quickly invaded the left side of the face and neck and the upper part of the chest, extending slightly across the middle line to the right side. The pulse was 120, weak and irregular. The respirations were 56. Patient complained of pain in the abdomen and of feeling very weak.

The diagnosis presented great difficulties. We had to seek an explanation for sudden abdominal pain and vomiting, coming on after drinking a considerable quantity of fluid, followed after an interval of about fourteen hours by rapidly-developing superficial emphysema of the left side of the face, neck, and chest; and to complicate the case still further, we had sugar and albumen in the urine, and a large effusion into the right pleura. The possibility of a gastric ulcer rupturing through the diaphragm into the lung was considered. This rare accident is known to occur in cases of gastric ulcer in which adhesion has taken place between the stomach and the diaphragm. As this diagnosis seemed to leave several points unexplained, and as the patient's history did not point in any conclusive way to the presence of ulcer, no positive opinion was arrived at. The bowels were opened by enema; a sedative was administered, and it was decided to watch the case for the present. The indications seemed too obscure to justify operative interference.

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[a] Read in the Section of Medicine of the Royal Academy of Medicine in Ireland, on Friday, March 10, 1899.

The patient passed a restless night, and the following morning his condition was in most respects the same, but there was increasing weakness. He gradually sank during the day, and died at 11 o'clock p.m., thirty-seven hours after drinking the bottle of stout, and twenty-three hours after the first appearance of emphysema of the face and eyelids.

The autopsy was made by Dr. Lorrain Smith twenty-two hours after death. I am indebted to Dr. Smith for the following notes:—Emphysema was well marked in both mediastina, especially the left. The right pleural cavity contained 50 ozs. of fluid and the left 16 ozs. The fluid was flocculent serum, not purulent. Well-marked signs of acute pleurisy on both sides; lungs congested; no consolidation. Two inches above the cardiac orifice of the stomach there was an elongated ulcer, an inch and a half long, in the œsophageal wall. In the lower part of its extent it involved only the mucous membrane. The edges of the ulcer were thickened, but not indurated. There was no evidence of any malignant deposit around the ulcer or elsewhere in the œsophagus, and no secondary deposits in any of the viscera. A sinus connected the ulcer with an abscess in the posterior mediastinum between the œsophagus and the aorta. This abscess had ruptured into the lung at its root, and air had been extravasated along the deep fascia, and also along the superficial fascia of the neck. There was no communication between the abscess and the pleural cavity. A few patches of atheroma were found in the aorta. The kidneys were much congested, and the liver was fatty. In the brain there was chronic thickening of the pia and arachnoid. There were patches of atheroma in the arteries of the base, general congestion of the meninges, and œdema of the brain substance. The amount of fluid in the ventricles was increased, and the puncta cruenta were well marked. The pancreas was normal.

As to the cause of the ulceration of the œsophagus, it may have been syphilitic. There was no history of swallowing a foreign body or any corrosive fluid, but at the age of thirty-nine the patient had an attack of what he called "blood-poisoning." It seems probable that this was really syphilis, and that the ulcer had its origin in this way. There were no definitely syphilitic lesions found at the autopsy. The *post-mortem* evidence was decidedly against the hypothesis of malignant disease.

It is interesting to observe that the emphysema was first noticed in the eyelid.

Case of Probable Tubercular Meningitis, followed by Recovery.

Considerable doubt exists in the minds of many members of the medical profession regarding the possibility of recovery in tubercular meningitis. A long list of leading authorities—British, American, and foreign—might be quoted in support of the view that recovery never takes place, and that all cases of alleged recovery involve an error of diagnosis. On the other hand, Gowers says, "It is not open to question that cases do sometimes recover." Fagge and Bristowe held the same view, and although Osler has not himself seen a case of recovery, he admits that such cases have been reported by good authorities. While the subject remains in this doubtful state it is desirable to put on record every case in which recovery takes place after the diagnosis of tubercular meningitis had been made upon apparently adequate grounds.

Case II.—Miss E. G., aged nineteen, was seen by Dr. King Kerr upon Nov. 20, 1898, when he found a considerable effusion into the right pleura. The family history was bad, there being tubercle on both sides of the house, and the mother and a younger sister being at the present time actual sufferers from phthisis. The patient had enjoyed fair health, but had suffered much from periodic headache. A few years ago some tuberculous glands were excised from the neck, the scars remaining, but perfectly healed. There was no reason to suspect the existence of any antecedent pulmonary disease, but the pleurisy had come on insidiously, and may have been tubercular in origin. The temperature upon Nov. 20 was 103°, and the pulse 96.

The case pursued a slow but not unfavourable course until Dec. 3, when the patient first complained of headache. The previous night had been restless, and the temperature, which had fallen to 99°, now rose to 101°. On the following day, Dec. 4, the headache was exceedingly severe, and towards evening vomiting set in. The night was very bad, and on the following morning, Dec. 5, the headache was severe and continuous, vomiting frequent, the tongue thickly coated, the temperature 101·5°, pulse 96. At 4 30 o'clock p.m. on this day I first saw the patient in consultation with Dr. King Kerr. She was extremely restless, tossing about continuously in the bed, and apparently in great suffering. The pulse was frequent, regular, and of low tension. The pupils were very sluggish, but neither much contracted nor dilated. There was still some fluid in the right pleural cavity. On the following day, Dec. 6, the symptoms were still more severe. The patient was delirious, and was with difficulty held in the bed. The temperature was 101° in the morning, and rose to 102° in the evening. Tache cérébrale was well marked. The pupils were moderately dilated, and responded very feebly to light; vomiting still continued. An examination of the fundi oculi with the ophthalmoscope showed the presence of double optic neuritis, and the retinal vessels were dilated and tortuous. These signs were rather more marked on the left than on the right side. Late on the night of Dec. 6 the patient became comatose, and began to pass all evacuations involuntarily. On the following day, Dec. 7, the patient was comatose, but showed slight signs of consciousness if addressed in a loud voice. The temperature fell at night to 100°, the pulse remained frequent, regular, and weak. The pupils were much dilated and very sluggish. The patient continued able to swallow her milk. The evacuations continued to be passed involuntarily. This condition lasted from Tuesday, Dec. 6, to Friday, Dec. 9, without substantial change. The patient was seen several times daily by Dr. King Kerr, and each afternoon we met in consultation, only the slenderest hope of recovery being entertained. On Friday, Dec. 9, the coma showed signs of abating. The next day there was some further improvement, and upon Sunday, Dec. 11, the change for the better was marked. From this time forward the patient made an uninterrupted recovery, and in about three weeks had regained her ordinary health. During convalescence she complained of persistent vertical headache, which only disappeared slowly and by degrees. The fluid in the right pleural cavity gradually became absorbed.

The treatment adopted consisted in the continuous application of cold to the head by means of Leiter's tubes, the internal administration of iodide and bromide of potassium, and the occasional employment of a mercurial purge.

It will, I think, be admitted that this was at least a case of meningitis, whether tubercular or not. The possibility of any alternative diagnosis, more especially of typhoid fever, was carefully considered, but was clearly inadmissible. The temperature was not in the least like typhoid; there was no rash, no enlargement of the spleen, no diarrhœa; the tongue was not typhoid in character.

In favour of the meningitis having been tubercular we have a quite unusual combination of evidence—the family history, the previous existence of tuberculous glands in the neck, the presence of a suspicious pleurisy all point in one direction. It is noteworthy that no slowing of the pulse and no paralysis of any of the cranial nerves appeared. The absence of any pressure symptoms justified a hope of recovery, which was never quite abandoned, and which was finally justified by the result.

Case of Non-febrile Pneumonia.

Case III.—S. M'F., aged thirty-three, male. *Family History* good; both parents living. *Personal History*—No previous illness of any importance; habits very intemperate.

History of Case—On Thursday evening, Oct. 13, 1898, patient consulted Dr. M'Kisack. He complained of having suffered from headache, sickness, abdominal pain, and malaise for several days. The tongue was covered with a creamy white fur, the breath was foul; pulse 80, temperature 98·8°, respirations 20. No abnormal signs in chest or abdomen. The patient passed a fair night and next morning, Friday, Oct. 14, he was again sick and vomited after breakfast. Temperature normal, tongue still dirty. Dr. M'Kisack again examined the chest, but did not find anything abnormal. On Friday afternoon the patient felt better and sat for some time in the dining-room and talked with several visitors. At 9 p.m. it was noticed that his breathing was hurried, and he had some difficulty in going upstairs to bed. He passed a restless night. Dr. M'Kisack saw him again at 9 o'clock a.m. on the following morning, Saturday, Oct. 15, when a marked change in the general condition was manifest. The respirations were now 36 per minute, the pulse 100, temperature in the mouth and in the groin 96·5°. Signs of consolidation of the base of the right lung were now manifest—viz., dulness on percussion, bronchial breathing, and increased vocal fremitus. I saw him in consultation with Dr. M'Kisack at 4 o'clock p.m. on this day. In addition to the above signs there was some crepitus audible over portions of the lower lobe of the right lung. The pulse was 106 in the minute and very weak; temperature in the groin 98°, in the rectum 99°; respirations 36. The patient was much collapsed, but quite conscious. The condition being evidently one of the utmost gravity the relatives were telegraphed for and arrived in a few hours. The patient got rapidly worse. At 8 o'clock p.m. the temperature for the first time began to rise, and reached 101°. The patient quickly sank and expired at 9 30 o'clock.

The points worthy of note in this case are the following:—(1) The obscure onset, the symptoms at first being purely gastro-intestinal and probably connected with the patient's alcoholic habits. (2) The absence of pyrexia until within a very short time of death, in spite of the presence of a considerable amount of consolidation of the right lung. (3) The absence of any reaction, the patient rapidly sinking under the pneumonic attack. In this collapse no doubt alcoholism was a chief factor. (4) The fact that death ensued within twenty-four hours of the definite onset of pulmonary symptoms.

The treatment included the administration of carbonate of ammonia, digitalis, strychnin, and alcohol, together with inhalations of oxygen, but proved wholly ineffective.

The immediate cause of death in the above case may admit of some doubt. The signs were more those of general collapse than specially those of heart failure, which is, I believe, the usual cause of death in pneumonia. In many cases death is preceded by evident signs of failing heart, but is very sudden at the end. In these cases the right ventricle is often found full of soft whitish clot. Possibly plugging of the pulmonary artery may sometimes be the determining cause of death.

Into the general treatment of pneumonia it is unnecessary for me to enter. I rely chiefly on strychnin, alcohol, and inhalations of oxygen. My early experience of oxygen was disappointing, and at one time I was disposed to take a low view of the value of this remedy. Recently I have been more fortunate, and believe I have seen substantial benefit from its administration. No doubt the benefit is often transient, but in an acute self-limited disease like pneumonia every moment gained is a substantial advantage to our patients.

ART. XV.—*Public Health and Preventable Disease in the Counties of Cork, Kerry, and Waterford.* By PATRICK LETTERS, M.D., D.P.H.; Fellow of the Royal Academy of Medicine in Ireland; Fellow of the Royal Institute of Public Health; Fellow and Member of Council of the British Balneological and Climatological Society.

(*Continued from page 189.*)

LOOKING to the Irish portion of the table, we see urban influences at work in Cork, and to a far more intensified degree in the smaller city of Waterford. It is not easy to understand the extraordinary diarrhœa mortality throughout the County of Waterford. The high city rate tinctures that of the whole county, but not to a degree to explain away a rate of 0·694. If the diarrhœa death-rate of Waterford county minus Waterford city be calculated, it will be found to stand at 0·431, a rate higher than that of Ireland, and more than half as high again as Cork county with the city included. It is evident that there are influences at work in County Waterford favourable to the propagation of preventable disease, which operate to a less degree in County Cork and to a still smaller extent in Kerry. What these influences are, and whether capable of amelioration, we may leave for elucidation and investigation by a future medical officer of health for the County of Waterford. Let us now see if we can put our fingers upon any spots in the three counties showing a markedly high rate of mortality from diarrhœa. In the County of Cork the distribution of diarrhœa mortality was widely scattered, but without any marked concentration, except in the union of Mallow, where 7 deaths occurred. In Kerry the union of Listowel was a very distinct focus. Of the 11 deaths which occurred there, 8 were in the dispensary district of Listowel. Tralee, the county town, was remarkably free from diarrhœa, 1 death only having occurred here, although 3 others occurred within its union. In Waterford there was an undoubted concentration of diarrhœa in the Dungarvan dispensary district, in which 9 deaths occurred. To show possible death-rates from diarrhœa in small communities, the rates in the dispensary districts of Listowel and Dungarvan are instructive. The Listowel rate, 0·746, though no more than double that of Ireland, is quite a remarkable rate in Kerry. The Dungarvan rate runs up to 1·095, and is not equalled elsewhere in the whole area of South Munster except by Waterford city, which carries off the palm for diarrhœa mortality. It is just worth remarking that diarrhœa last year carried off people in Waterford city at quadruple the rate it did throughout South Munster, and at six and three-quarter times the rate that prevailed throughout the County of Kerry.

The nine diseases now discussed—namely small-pox, measles, scarlet-fever, typhus, influenza, whooping-cough, diphtheria, enteric fever, and diarrhœa—are grouped by the Registrar-General under the generic heading "Special Febrile or Zymotic Diseases." It is true that these diseases are all specific, but they are not all accompanied by the phenomena of pyrexia, and the term "zymotic" has already grown too ancient to express our modern ideas of their genesis. Most of them have been shown to have a bacterial connection, but for several no proof of this has been established, and biogenesis is only assumed analogically. They have, however, one character in common—they are all communicable diseases, and, within varying limits, preventable. The ultimate extinction of some of these diseases is regarded by many as a theoretical possibility, for which view many powerful arguments can be advanced. We need not, however, travel into this seductive theme. What we have to concern ourselves with is the practical question of sanitation. The whole of the diseases discussed are preventable by the employment of hygienic weapons, or by donning hygienic armour, and our duty as sanitarians is to wage war—offensive or defensive—against them all. Two of my headings still remain for consideration—tabes mesenterica with tubercular meningitis, and phthisis. These are grouped by the Registrar-General along with cancer under "Constitutional Diseases." As all forms of tubercular disease owe their origin to the Bacillus tuberculosis, there is no scientific reason why they should not appear, with enteric fever and diphtheria, in the "special febrile or zymotic" group. From the public health standpoint, tubercular diseases have come to be recognised as eminently preventable by hygienic means, and on the point of their communicability there is now no room for a second opinion. When we come to investigate the destructiveness of the tubercular diseases numerically we shall find them to throw all the previously considered diseases quite into the background.

Tabes Mesenterica and Tubercular Meningitis.—The Registrar-General tabulates these two forms of infantile tuberculosis separately, but I think a better view of the total destructiveness of tubercle in childhood will be got by a study of their combined mortality. The lives sacrificed in Ireland last year to those diseases amounted to 2,181. This huge waste of young life from preventable disease is one of the saddest features of our national mortality statistics. Recalling the figures already given for measles, influenza, whooping-cough, and diarrhœa, they are, singly, all less than this tubercular record. In Cork County 188 deaths occurred, in Kerry 46, and in Waterford 55.

MORTALITY TABLE OF TABES MESENTERICA AND TUBERCULAR MENINGITIS COMBINED.

—	Deaths	Death-rates
Cork - - - -	188	0·443
Kerry - - - -	46	0·265
Waterford - - -	55	0·579
South Munster - -	289	0·417
Cork Union - - -	100	0·753
Waterford Union - -	32	0·636
Ireland - - -	2,181	0·479
England (1895) - -	14,185	0·465

In the various tabular statements given for the country in general and the southern counties none show the same uniformity of high death-rates which this table does. The pernicious influence of urbanisation is most distinctly declared in the rates for Cork and Waterford unions. Were city rates given, still higher figures would be disclosed, but for the same reason given under influenza it is not possible to localise tubercular death-rates in smaller areas than poor-law unions. It will be seen that the three counties stand relatively to each other in the same position as they do in reference to most of the other preventable diseases, Waterford showing to the greatest disadvantage. It will also be observed that the combined death-rate from tabes mesenterica and tubercular meningitis was slightly less serious in the south than in the country generally. It is to be regretted that the official returns do not admit of an inquiry into the local distribution of these extremely interesting diseases in small communities. Under a reformed sanitary administration the county mortality statistics, which would be regularly tabulated by medical officers of health, would obviate all difficulties in localising tubercular or any other form of preventable disease.

Phthisis.—This cause of death stands, in respect of its prodigious mortality, on a different footing from anything yet referred to. Last year 9,748 persons perished from this disease in Ireland; but, to show that phthisis is always with us, it has only to be mentioned that for the past quarter of a century the average annual deaths have reached 10,200. The total deaths in Ireland last year from the preventable diseases already considered amounted to 10,461. When the figure for phthisis is added to this, we have a grand total of 20,209 deaths, which may be regarded as one year's life wreckage from a set of diseases, which are universally acknowledged to belong to the preventable class. As the total deaths registered in Ireland in 1897 were 83,839, it follows that one death out of every four throughout the country proceeded from a disease of a preventable type. In the County of Cork 928 deaths were registered from phthisis, in Kerry 297, and in Waterford 201. Let me now present a tabular view of phthisis mortality:—

PHTHISIS MORTALITY TABLE.

—	Deaths	Death-rates
Cork - - - -	928	2·188
Kerry - - - -	297	1·714
Waterford - - -	201	2·115
South Munster - -	1,426	2·059
Cork Union - - -	416	3·133
Waterford Union - -	130	2·584
Ireland - - -	9,748	2·120
England (1895) - -	42,490	1·389

The first point to strike one on inspection of this table is the low death-rate from phthisis in England compared with our general and also our county rates in Ireland. The explanation is that English sanitation has been successfully working against phthisis for many years, while in Ireland we have not yet attempted to cope with it in any practical or comprehensive sense. Twenty-two years ago the English death-rate from phthisis was 2·119 per 1,000 of the population; that is, a rate almost identical with that of Ireland last year. The Irish death-rate from phthisis twenty-two years ago was less serious than it is now. During the twenty years interval 1876–1895 the peculiarity of the English record is that, year by year, with slight intermissions, there has been a steady decline in the phthisis death-rate; in Ireland during the same period the disease has gone on carrying off its ten thousand victims annually with woeful regularity. Surely the visible fruit of sanitation in the one country and its absence in the other, in regard to the same ravaging disease, should speak didactically to us; we want a vigorous crusade in Ireland against phthisis. Urban influences are again very plainly seen in the figures for Cork and Waterford Unions. The Cork Union rate was a very serious one. Were it to become general in Ireland, the annual deaths in the country from phthisis would be increased by nearly 5,000. Looking to the three county rates an interesting question is, How would they appear if from County Cork and County Waterford the urban influences of the two city Unions were excluded? The rate for Cork County minus Cork Union works out to 1·757, and for Waterford County minus Waterford Union to 1·587. If calculations of this kind were to get rid of all urban influences in each county, conclusions as to the relative salubrity of their rural parts might be drawn, but not otherwise. County Cork contains 39 towns with populations at last census exceeding 500. Waterford County contains only 7 such towns, and Kerry 12. Phthisis is a disease largely propagated by defective ventilation inside dwellings. Might it partly explain our heavier phthisis mortality than England that a larger proportion of our people, of our small town dwellers and villagers especially, occupy houses constructed without provision for free ventilation? No sanitary investigation in Ireland is more urgently called for than the precise determination of the causes of phthisis mortality. The Registrar-General for Ireland has pointed out that districts with a heavy rainfall have less phthisis mortality than the drier localities, but collective investigations are everywhere required to settle much that is presently undecided as to the conditions which favour dissemination of this disease.

It is now essential, in order to convey an adequate idea of the collective destructiveness of preventable diseases, to bring out for each county its total mortality from all the diseases we have been considering. The various death-rates given have been worked out to three decimal places in order to insure a collective estimation as accurate as may be. The Table is here presented.

Contrasting the Irish and English death-rates as they appear side by side, the absolute difference in favour of Ireland from preventable disease as a whole is 0·066 per 1,000. The true way, however, to look at the difference is to consider with it the unequal distribution of the populations of the two countries into urban and rural communities. If it were possible to apply a correction equalising this difference of distribution a preventable disease death-rate in England of 4·439 would indicate a very much better sanitary condition than 4·373 in Ireland. In all forms of tubercular disease a higher mortality prevails in Ireland than in England, and, in the case of phthisis, a disease which sweeps away its victims in the springtime of life, the excess of the Irish rate is very pronounced.

DEATH-RATES PER 1,000 LIVING FROM PREVENTABLE DISEASES IN 1897.

Disease	Cork	Kerry	Waterford	South Munster	Ireland	England (1896)
Small-pox - -	0·000	0·000	0·000	0·000	0·001	0·007
Measles - -	0·384	0·127	0·000	0·267	0·235	0·378
Scarlet Fever - -	0·050	0·052	0·084	0·055	0·115	0·149
Typhus - -	0·033	0·058	0·074	0·045	0·026	0·002
Influenza - -	0·170	0·185	0·189	0·176	0·337	0·424
Whooping-cough -	0·215	0·225	0·463	0·251	0·407	0·316
Diphtheria - -	0·101	0·006	0·021	0·066	0·074	0·260
Enteric Fever - -	0·113	0·012	0·158	0·094	0·219	0·175
Diarrhœa - -	0·266	0·190	0·694	0·306	0·360	0·874
Tabes Mesenterica and Tubercular Meningitis	0·443	0·265	0·579	0·417	0·479	0·465
Phthisis - -	2·188	1·714	2·115	2·059	2·120	1·389
Total Death-rate from Preventable Disease	3·963	2·834	4·377	3·736	4·373	4·439

On the surface there is nothing in the circumstances of Ireland, except the insanitary and overcrowded homes of the poor, likely to favour tubercular disease, and one of the first fruits of an efficient sanitary administration would be a gradual fall in the phthisis death-rate all over the country. The inequality of the diarrhœa death-rates of the two countries is very marked. It is explained by the fact that autumnal diarrhœa is an urban—not a rural—disease. The higher enteric fever death-rate in Ireland may safely be accounted for by the absence of a sanitary service in the counties, but also to some degree by the success which has attended applied sanitation in the cities of England. Death-rates from measles, scarlet-fever, and influenza are higher in England because of the facilities always existing in densely populated localities for the spread of these diseases. It is, however, to be noted that whooping-cough was last year perceptibly a more serious disease in Ireland than in England. A very great difference in favour of Ireland is seen in the death-rate from diphtheria, a point to which attention has already been directed.

On comparing the death-rates of South Munster with these of Ireland we find all the preventable diseases less fatal in the south than in the country generally, with the two exceptions of measles and typhus fever. As both are typical air-borne diseases, propagated largely by deficient ventilation, the question whether over-crowding inside dwellings is more pronounced in the Southern Counties than elsewhere would be an interesting one to solve. In the total death-rate from preventable disease South Munster stands 0·636 per 1,000 better than all Ireland, a substantial difference. In enteric fever and whooping-cough it compares very favourably with the country at large. Turning to the individual counties, it is seen that the preventable disease death-rate of Waterford stands at 0·414 per 1,000 higher than that of Cork, and that the rate of Cork is no less than 1·129 per 1,000 above that of Kerry. It might safely be claimed for Kerry that it is a healthy county—one of the most so, indeed, in Ireland. It does not, however, stand above the need of sanitary help, and perhaps the more correct way to put it is that Kerry is decidedly the least insanitary of the three counties which comprise South Munster. Looking to the individual diseases, the preponderance of typhus in Waterford is well-marked, as are also whooping-cough, diarrhœa, and the tubercular diseases of childhood. In Co. Cork the prevalence of measles and phthisis are both very well declared. In Kerry the extremely low death-rate from diphtheria is quite a feature of the table. Enteric fever is also very low, and all forms of tubercular disease are well below the remainder of South

Munster. If we put the Counties of Kerry and Waterford into comparison, the striking differences in almost the whole of the figures arrest attention immediately.

In their death-rates from preventable disease *in toto*, Waterford exceeds Kerry by 1·543 per 1,000, or, put otherwise, for every one hundred persons who perished in Waterford from preventable disease there were only sixty-five in Kerry. If the figures opposite the individual diseases are scanned, the Kerry rates are found all lower than those of Waterford, with the single exception of measles, which was altogether absent from the latter county. It would be false to reason from this that any sanitary advantage exists in favour of Waterford, for measles is not a filth disease generated on the spot by insanitary conditions. It simply means that this disease did not travel into Waterford County last year. We have only to look to the figures for scarlet-fever and whooping-cough to see that, when diseases with an ambulant tendency invade Waterford and Kerry, they find better lodgment accommodation in the former than in the latter county. The death-rates from typhus fever in Kerry and Waterford deserve serious consideration. In Kerry the rate was high—quite double the rate for Ireland—but the Waterford rate touched a very alarming point. This disease is a great blot upon the present-day sanitation of Ireland, for which the poverty of the country is no satisfying explanation. Throughout all South Munster we are in the unenviable position of having a typhus death-rate almost double that of our excessive national rate. If we take the three representative filth diseases—diphtheria, enteric fever and diarrhœa—and sum up their mortalities separately in Kerry and in Waterford, we are met with a result which is not easy to understand. The combined rate for these three diseases in Kerry was 0·208 and in Waterford 0·873 per 1,000 of their respective populations. Why people in Waterford should perish from diseases generated or propagated by filth at more than four times the rate in Kerry seems almost inexplicable, yet it is true. The death-rates from the infantile tubercular diseases, tabes mesenterica and tubercular meningitis, differ greatly in the two counties. Waterford children died from these diseases at more than double the rate of children in Kerry. The English and Irish rates, as well as those of South Munster and Cork County, are all much on a level as regards these diseases. Waterford stands clear ahead of them all in its mortality, and Kerry far below them. Is it that tuberculosis amongst milch cows is more prevalent in Waterford? or is it in defective domestic sanitation or in telluric or climatic influences that we must look for an explanation of the statistically proved insalubrity in that county? It only remains to be pointed out that the death-rate from phthisis was distinctly lower in Kerry than elsewhere throughout the South of Ireland. It is not enough, in order to gauge the state of public health in a district, to know the rates at which people die from diseases commonly regarded as preventable. We should also know the rate of death from all causes. The general death-rate in Co. Cork last year was 17·15 per 1,000 of its population; in Kerry it was 13·28; in Waterford 18·65; in South Munster 16·39; in Ireland 18·42. The English rate in 1895 was 18·73. These figures show that the same relative position of the counties remains, excluding from consideration the deaths from preventable diseases. The infantile death-rate is expressed as so many per 1,000 births occurring in the same year.

A high infantile death-rate is a frequent, though not an invariable concomitant of a high general death-rate. The following table shows that all the death-rates are more or less associated in the South of Ireland:—

INFANTILE MORTALITY TABLE.

—	Births, 1897	Deaths under 1 year	Deaths per 1,000 Births
Cork - -	9,436	940	100
Kerry - -	4,061	331	82
Waterford -	2,112	228	108
South Munster -	15,609	1,499	96
Ireland - -	106,664	11,648	109
England (1895) -	922,291	148,093	161

Infant life, though very much safer throughout Ireland than in England is still very insecure in a few of our larger urban districts. Poverty, *per se*, is I think, not a cause of infantile mortality in rural Ireland. The greater rate in some counties than in others is usually explicable by the varying degrees of aggregation of small town populations prevailing. In the above table, Waterford still takes the lead, but density of population is not the explanation. We must conclude that the greater degree of insalubrity, which Waterford statistics show, exerts its influence over the infantile as well as over the general population.

A BULLET EMBEDDED IN THE HEART FOR THIRTY-SEVEN YEARS.

A correspondent of the *Baltimore Sun*, writing from Morgantown, W. Va., asserts that a man named William B. Smallridge, who died a few days ago at Glenville, in Gilmer County, carried a bullet in his heart for thirty-seven years. He was a member of company E, first West Virginia infantry, in the civil war, and in September, 1861, while marching through Gilmer County, was shot by some one in ambush, the bullet entering Smallridge's chest at the lower point of the scapula, on the left side, passing thence directly through the left lung into the left ventricle of the heart. The force of the bullet was so broken that it did not penetrate the inner wall, but the regimental surgeon pronounced the wound fatal and left Smallridge to die. He did not die, however, but was sent back up the Little Kanawha River in a skiff to his home, in Glenville, where he recovered and has since lived. A few weeks ago, while on his death bed, he asked Dr. G. O. Brown to make an examination of the wound after his death. This Dr. Brown and Dr. O. B. Beer did and found the bullet embedded in the heart. The man had never suffered from any disturbance of the heart. His death was due to cancer. This report is confirmed by Dr. Beer in a letter in the Cincinnati *Lancet-Clinic* of November 19, 1898.

ABSENCE OF THE LEFT BREAST.

At a meeting of the National Society of Medicine of Lyons, on the 3rd of December, 1898, M. Vinay presented to the society a young woman, twelve days after her confinement, who had no left mammary gland.—*Lyon Médical, No.* 51.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Twentieth Century Practice An International Encyclopedia of Modern Medical Science by Leading Authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In Twenty Volumes. Volume XVII. Infectious Diseases and Malignant New Growths. London: Sampson Low, Marston & Co. 1899. 8vo. Pp. 715.

THE Publishers announce that, owing to unforeseen difficulties in the preparation of Volume XVI., it has been found necessary to issue Volume XVII. out of its natural order.

The volume opens with two memoirs on Diphtheria. In the first of these, Dr. William Hallock Park, Assistant Director of the Research Laboratory of the Health Department of New York City, discusses at length the general pathology and bacteriology of the disease. His article runs to 44 pages, and is illustrated by two plates, showing both the Klebs-Loeffler bacillus and "pseudo-diphtheria bacilli" as well as other micro-organisms found in cases of pseudo-diphtheria. Under this name the author includes all inflammations of the mucous membranes which simulate true diphtheria, but which are due to streptococci, or, more rarely, other cocci. The symptomatology and treatment of diphtheria are reserved for Dr. A. Jacobi, LL.D., of New York. Both he and Dr. Park mention the xerosis bacillus, which is believed by Schanz to be identical with the Klebs-Loeffler bacillus. With Roux and Yersin, Dr. Park believes that the xerosis bacillus is an attenuated variety of the true diphtheria microbe, which has lost its power to produce diphtheria toxin. The name is derived from the fact that this bacillus has been found by Kuschbert and Neisser in a number of cases of the condition known as xerosis conjunctivæ.

The last of the infective diseases described is tetanus, which receives full justice at the hands of Dr. Victor Babes, Director of the Pathological and Bacteriological Institute at Bucharest. His account of Nicolaier's tetanus bacillus, its discovery and morphology, is very interesting. As regards specific treatment, the author concludes that the treatment with antitoxin as well as its intracranial injection must be looked upon as a marked advance, but it should not restrain us from making use of other well-tried remedies.

The bulk of the present volume is occupied by a series of remarkable memoirs on Cancer and Sarcoma by Mr. William Roger Williams, of Clifton, Bristol, and Dr. William B. Coley, of New York. Mr. Williams writes on the pathogenesis, morphology and general pathology of cancer. Dr. Coley deals with the symptomatology and treatment of this disease. The authors adopt the same division of labour in their discussion of sarcoma. Dr. Coley's clinical articles on both cancer and sarcoma are well illustrated by original photographs. The most remarkable section of Dr. Coley's monograph on Sarcoma is that in which he describes the method of treatment of inoperable sarcomata by the mixed toxins of erysipelas and *Bacillus prodigiosus*, which was first used by him in 1892. This method was the result of gradual evolution from the earlier experiments with the streptococcus of erysipelas and its toxins. He admits that the results of this treatment in carcinoma have been so unsatisfactory that the method has been practically abandoned in this disease. Not so in the case of inoperable sarcomata. His conclusions will be found at pages 618 and 619, and are in almost perfect accord with those published by Dr. Charles Wm. Mansell Moullin in the *Lancet*, February 5, 1898. Suffice it to say here, that a considerable number of inoperable sarcomata, the correctness of the diagnosis of which is beyond question, have entirely disappeared under this method of treatment.

The remaining articles in Volume XVII. are on "Malignant New Growths of the Skin," by Dr. John T. Bowen, Assistant Physician for Skin Diseases to the Massachusetts General

Hospital, Boston; and on "Malignant Diseases of the Female Organs of Generation," by Dr. Edward McGuire, Professor of the Diseases of Women in the University College of Medicine, Richmond, Virginia.

It will be seen from the foregoing analysis that the volume before us is one of exceptional value and interest.

Contributions to Clinical Medicine. By T. M'CALL ANDERSON, M.D.; Professor of Clinical Medicine, University of Glasgow; Physician to the Western Infirmary, Glasgow, &c. Edited by JAMES HINSHELWOOD, M.D., Assistant Surgeon, Glasgow Eye Infirmary. Edinburgh: Y. J. Pentland. 1898. Pp. 415.

THESE essays contain an epitome of some of Dr. M'Call Anderson's experiences. They consist chiefly of records of cases, which form a very much larger portion of the work than the author's remarks on them. These records are exceedingly well written. It is difficult in writing notes of a clinical case to avoid such excess of detail as renders the whole picture confused and indistinct, without running into the opposite extreme, and making the case dry and unattractive through want of individualisation. The notes of cases in the volume before us avoid both of these extremes—they are reasonably concise, and yet present to the mind a clear delineation of the patient's state.

The contents are divided into six groups—General Diseases, Diseases of the Nervous System, of the Circulatory System, of the Respiratory System, of the Digestive System, and of the Urinary System. The author's clinical work extends over a quarter of a century, and so we find some of the records are of recent date, while others were written a good many years ago.

The individual articles vary much in value and importance. We were particularly interested in that on the treatment of aneurysm of the arch of the aorta by means of galvano-puncture, the cases and the results of the treatment are so vividly described. There is a valuable paper on Intracranial Tumours, and a suggestive one on Spinal Irritation, in which the value of blisters is emphasised in cases in which there is tenderness of the spinal column. On the other hand, some of the articles are not of much permanent interest. For example, the first in the book consists of an argument to prove that pyrexia *per se* is a dangerous state, and that kairin and antipyrin are generally useful and advantageous as antipyretics—a view which will not generally be accepted.

The volume is published in Pentland's admirable style, and will be welcomed by Dr. M'Call Anderson's numerous pupils and friends. Other members of the profession will gain valuable hints from its perusal.

Transactions of the Clinical Society of London. Vol. XXXI.
London: Longmans, Green, & Co. 1898.

The subject to which most space has been allotted in this volume of the Clinical Society's Transactions is that of the treatment of angular curvature of the spine by means of extension and pressure. Messrs. Tubby and Jones have operated on 25 cases, and their verdict is unhesitatingly in favour of the method of treatment. They consider that the cases suitable for operation are:—

1. Those occurring in the young, though young adults are not necessarily excluded.
2. Those in which the disease is locally active.
3. Those in which the angle of deformity is changing.
4. In those cases of paraplegia unrelieved by ordinary treatment, as they hold immediate reduction to be a more reasonable proceeding than laminectomy.

They describe very fully the method of procedure they have adopted. M. le Dr. Calot, of Berck-sur-Mer, and Dr. A. Chipault, of the Salpêtrière, also have papers on the same subject (it will be remembered that Dr. Calot was the originator of the method), and Dr. Redard, in addition to a paper, has several illustrations showing how the treatment is carried out by him. We recommend any surgeon who thinks of treating a case of Potts's caries on these lines to consult this volume.

Mr. A. E. Barker has an instructive paper on fifteen consecutive cases of acute intussusception; he holds that the routine treatment should be abdominal section, while manipulation and injections of air or water should be reserved for exceptionally favourable cases. He also gives a very complete tabular statement of 43 cases which have been in the University College Hospital during the past twenty years. Mr. D. Newman has a well-illustrated and full paper on Malformations and Displacements of the Kidneys. Dr. S. West relates an interesting case of pleural effusion. The fluid had been present for 15 months; repeated aspirations then resulted only in re-accumulation; finally after incision and drainage the lung rapidly expanded, and the patient improved greatly in health. At the time, however, at which the case was reported a sinus still remained open, discharging a little pus. Drs. Box and Wallace relate a very interesting and curious case of acute dilatation of the stomach. They have made a *résumé* of all the recorded cases of this rare condition which they could find.

The volume contains the report made by a committee appointed to consider the value of the antitoxin of diphtheria. The report is eminently favourable to the use of antitoxin, but contains nothing very new. They found the injections produced a rash in about one-third of the cases, but were of opinion that, even when very large doses were injected, no serious ill effects followed its use.

The Phonendoscope and its Practical Application. By A. BIANCHI, M.D. (Parma). Translated by A. G. BAKER, M.D. (Philadelphia). Philadelphia: G. P. Pilling & Son. 1898. Pp. 77.

THIS book consists of a series of lectures on the construction and uses of the Phonendoscope, as well as descriptions of the ordinary methods of auscultation by means of the instrument, Dr. Bianchi mentions a special mode of procedure whereby the size and limits of various organs can be ascertained. While listening with the phonendoscope placed over any organ—*e.g.*, the stomach—the skin of the patient at different distances from the instrument is stroked with a finger of the auscultator's unoccupied hand. When the skin is stroked over the organ over which the instrument is placed, the noise produced by the finger is perceived, but the sound is lost when the finger travels beyond the limits of the organ. In this way the size of the organ is ascertained. The stem of the phonendoscope must be pretty firmly pressed on the skin, and the stroking must be done with varying degrees of strength according to the depth from the surface of the organ in question. A number of plates are given showing where the phonendoscope may best be placed in examining various organs.

By means of forked tubes attached to the phonendoscope, a number of people are enabled to auscultate at the same time and under identical circumstances.

Dr. Anastasiades, of Greece, contributes a paper on the use of the phonendoscope in pregnancy. By using the above-described method he can mark out the size and position of the foetus: five figures are given showing the results obtained by this manner of investigation. The method, however, does not seem very easy of application; the woman should kneel with her body bent sharply forward in order that the uterus may come to lie as much as possible against the abdominal walls. The results obtained seem to deserve further investigation.

An Atlas of Bacteriology. Containing one hundred and eleven original Microphotographs with Explanatory Text. By CHAS. SLATER, M.A., M.B., M.R.C.S. Eng., F.C.S.; and EDMUND J. SPITTA, L.R.C.P. Lond., M.R.C.S. Eng., F.R.A.S. London: The Scientific Press, Limited. 1898.

THIS Atlas represents an effort to place at the disposal of students and teachers of bacteriology a fairly complete series of photographic representations of the objects they are studying and teaching. An extended review of such a work is not necessary, and we shall do no more than place on record our opinion of the way in which the authors have fulfilled their self-imposed task. We consider the photographic reproductions *excellent.* With few exceptions the definition is sharp, the field flat, the contrast clean and sharply marked, and—what is of equally great importance—the objects are well chosen and typical. The photographic introduction treats of the practical methods adopted by the joint authors for obtaining their negatives, and the photographs themselves are accompanied by a sort of bacteriological running commentary in which the chief facts bearing on the morphology and cultural appearances of the several organisms are clearly set forth. We can cordially recommend this Atlas of Bacteriology for a place in every laboratory where micro-biology is practised, and in the library of every member of the profession, whose duties or mental habits require him to possess a more than shadowy knowledge of the schizomycetes.

Manual of the Diseases of Children. By JOHN MADISON TAYLOR, A.M., M.D., Professor of Diseases of Children, Philadelphia; Assistant Physician to the Children's Hospital, &c.; and WILLIAM H. WELLS, M.D., Adjunct Professor of Obstetrics, Philadelphia, &c., &c. Illustrated. London: H. Kimpton. 1899.

THIS is an attractive looking volume, and Mr. Kimpton, the publisher, has turned it out in first rate style. It is, however, stated by the authors that it "lays no claim to be a treatise," and moreover that they "do not profess to offer anything new or novel." This is surely a "damper" to the reader on opening the volume, and one naturally wonders "why then this cumbrous addition to the bookshelves?" Not only this, but we are also told several articles are omitted. There are, however, a few attractions about the book, perhaps owing to Mr. Kimpton's excellent printing and binding. There are some excellent photographs; one in particular beautifully depicts in life size the stomach and thoracic viscera of a new-born infant, and others show the area of cardiac dulness on living patients. There is a very good description of the methods of estimating fat and cream in milk: five or six different instruments and methods are explained fully and well illustrated. There is a very clear account of the Walker-Gordon Milk

Laboratories throughout the United States, and the blank prescription forms used by physicians. "Stomatitis" is well described and reliably treated. There is also a good description of "scurvy." We notice with regret some peculiarities in spelling—"esophagus," "esophagitis," "goiter," "center," and "fiber," are words which rather grate on one's sense of what good writing should be.

The bulk of the volume is certainly well handled, but there are, to our minds, a great many deplorable deficiencies. The authors seem to have quite missed the true keynote of "marasmus" or "atrophy," no reference being made to its true pathology as now established, and no mention of the distinguished names of Dr. Soltau Fenwick, whose labours in this field have been so marvellously fruitful, or of Professor Baginsky, who has also investigated it in Germany. The names of Fenwick and Baginsky should henceforth be indissolubly connected with this decimating disease. Again, "tubercular peritonitis" is done in distinctly bad form, hazy and incomplete, and the other forms of abdominal tuberculosis are almost totally ignored. There is a good and very valuable account of "enuresis," or incontinence of urine, with illustrations of its nervous mechanism. Another grave omission is that of one of the most interesting of all the diseases of children, and one which has been beautifully described by our London physicians—we allude to "posterior basal meningitis of infants," or what was originally described as "cervical opisthotonos of infants" by Drs. Gee and Barlow, and signally advanced by Dr. Still. This is almost unpardonable in such a pretentious and handsome volume. This book, therefore, is an incomplete guide in its present garb. We venture to take exception to the authors' commendation of hot poultices in the bronchitis of young infants. Our own experience has compelled us to long since abandon them in favour of wool jackets. They deserve great credit, however, in another chapter for placing "tuberculosis" first in the list of their infectious diseases. The diagnosis of skin disease is excellently handled, and the method is a useful one. There is a fairly comprehensive index. The binding and general turn out of the book are excellent, and we warmly congratulate Mr. Kimpton on his fairmindedness in so handsomely treating American authors in our own country. If it ever reaches a second edition we hope the authors will insert some notice of that peculiar disease of children, *rheumatoid arthritis*, which they seem to have utterly passed over.

The Living Organism. An Introduction to the problems of Biology. By ALFRED EARL, M.A. London: Macmillan & Co. 1898. Pp. 271.

THIS is an able and suggestive essay, but one of which it would be impossible to give an intelligible summary. The author seeing the great development of the study of biology, points out that inaccurate conclusions and unsound speculations have more serious issues in the case of it than in any other of the natural sciences.

In order to avoid these results great care must be exercised in the instruction of rudiments. The student's attitude towards them requires to be changed. At present too much is taken for granted. The problems and generalisations of the science of living objects are regarded too complacently by the beginner, who is too easily contented with description and narrative.

Furthermore, everyone considers himself competent to discuss biological problems. "The respect shown for any generalisation of a chemical or physical nature affords a striking contrast to the confidence with which biological subjects are discussed. It would appear that the problems of inanimate nature, the qualities and changes of matter, are to be left in the hands of experts who approach them after a rigorous training, while untrained judgment may exercise itself over the mystery of life." The preface thus concludes: "The object of the book will be attained if it succeeds, although it may be chiefly by negative criticism, in directing attention to the important truth, that although chemical and physical changes enter largely into the composition of vital activity, there is much in the living organism that is outside the range of these operations." This idea is carried throughout the work, which ends with the following sentence :—"Every branch of research leads sooner or later to the unknowable, and that stage is soon reached in attempting to pursue the mechanical conception of life."

Atlas of Syphilis and the Venereal Diseases, including a brief Treatise on the Pathology and Treatment. By PROFESSOR DR. FRANZ MRAČEK.

THE authorised translation from the German of this work, edited by L. Bolton Bangs, M.D., is a publication worthy of notice among the new books of this year, which are likely to be of some practical use to students and to medical men in general. It contains some seventy illustrations of venereal affections, including most of the phases in which syphilis presents itself in the primary and secondary stages of the disease.

If some of the plates err on the side of being a little too highly coloured, they are, on the whole, excellent pathological illustrations, presented in a more convenient form, for the use of students and practitioners, than in the larger Atlas of Venereal Diseases by Cullerier, or in the publications of Hutchinson.

The value of such a book arises very much from the want of opportunity afforded to students in this country of acquiring an extensive practical knowledge by clinical instruction in lock hospitals, and from the absence of special wards for the reception and treatment of syphilis and other venereal diseases in our general hospitals.

The author has carried out his intention of providing a pictorial work on venereal diseases within the reach of a wider circle of readers than any of those hitherto published, and the selection of illustration, although not including many important developments of syphilis, includes nearly all of those which are likely to come under the observation of those who are not engaged in lock hospital work.

The treatise on pathology and treatment is sound, and quite a safe guide for those using the book for reference; there is but one slightly misleading feature in this portion of the book—it is, that in the conclusion of the description of most of the cases illustrated, the author makes some such statement as, "cured by 20 inunctions," "treated by inunctions and cured in five weeks."

No one familiar with complete syphilis, in any form, can for a moment think otherwise than that, in using the word "cured" in this way, Mraček intends only to imply that the particular syphilitic phenomena which were present at the commencement of the treatment had disappeared under the influence of so many applications of mercury.

The readers of this work must not fall into the error of thinking that syphilis is cured because it is no longer in evidence; they should keep their patients under observation, and, if necessary, renew treatment, as occasion arises, for a period of nearly two years before they can be justified in the belief that they have effected a cure, by which they should mean not only that no future syphilitic phenomena are likely to appear in the patient himself or herself, but that he or she may safely marry a person who is free from syphilitic taint, or the protective influence of a former attack of syphilis, without any risk either of communicating the disease, or of becoming the parent of syphilitic offspring.

A Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools. Issued by the Medical Officers of Schools Association. Fourth and enlarged edition. London: J. and A. Churchill. 1899. 8vo. Pp. 47.

FORMER editions of this useful and authoritative Code have been favourably reviewed in the pages of this journal. Eight years—fruitful in advancing knowledge of infectious diseases—have elapsed since the publication of the third edition. This has rendered a thorough revision of the work necessary. It is now issued in a substantial cloth binding. We notice that "quarantine" has been shortened to 10 days in the case of exposure to the infection of scarlatina, and to 16 days in that of smallpox; while "isolation" has been shortened to "not less than 10 days from the date of the appearance of the rash" in rubella, and to "not less than two weeks" in measles.

It is suggested, in a footnote on page 22, that the use of the term, "German measles," might be discontinued with advantage, so as to obviate its confusion with true measles. With this suggestion we are in thorough accord. But what is the meaning of the phrase (on pages 22 and 28) "German measles (*Rubella*), and epidemic roseola?" Surely the conjunction should be "or," not "and." At all events, we are not prepared to adopt without question the view advanced by the Association in the preface that there are *three* maladies—measles, rubella, *and* epidemic roseola—"the common infectious exanthem, which frequently bears a close resemblance to *Rubella*" (page 6).

This Code of Rules should be in the hands of every practitioner. It costs only one shilling and sixpence.

The Edinburgh Medical Journal. Edited by G. A. GIBSON, M.D., F.R.C.P., Ed. New Series. Vol. IV. Edinburgh and London: Young J. Pentland. 1898. 8vo. Pp. 600.

EDITOR and publisher alike are to be congratulated on the high literary standard attained in the fourth volume of the new series of this old-established monthly medical journal.

Dr. David Robertson Dobie, of Coldstream, reports an extraordinary case of what he believes to have been acute yellow atrophy of the liver, but the patient got well. This is only one of a series of thirty-seven original articles in the volume on all sorts of subjects connected with medicine, surgery, and midwifery.

The volume fully maintains the high reputation so long enjoyed by the *Edinburgh Medical Journal.*

Archives of the Roentgen Ray. Edited by THOMAS MOORE, F.R.C.S., and ERNEST PAYNE, M.A. (Cantab.). Vol. III. No. 2. November, 1898. London: The Rebman Publishing Co. 1898.

THIS number was delayed in publication in consequence of a change in the editorship. Mr. Sydney Rowland and Dr. W. S. Hedley, the former editors, will, however, act as members of the Editorial Committee.

The present number includes the usual editorial notes, papers, transactions, reviews, and abstracts, as well as six plates. These illustrate central sarcoma of the tibia, congenital absence of the clavicles in a girl of fourteen, a case of needle in the lumbar vertebræ, tubercular disease of the ankle, rheumatic gout, fractured patellæ, and a radiograph of an American frog, taken by Miss E. Fleischmann, of San Francisco.

Manual of Diseases of the Skin. With an Analysis of Twenty Thousand Consecutive Cases and a Formulary. By L. DUNCAN BULKLEY, A.M., M.D.; Physician to the New York Skin and Cancer Hospital, &c. Fourth edition, revised and enlarged. London: J. & A. Churchill. 1898. 8vo. Pp. 362.

So long ago as August, 1882 (Vol. LXXIV., No. 128, third series, page 124), we gave a favourable notice of the first edition of this excellent introduction to dermatology, as it may fitly be called. In this fourth edition the simple and elementary character of the work has been retained, while it has been thoroughly revised, and in great part rewritten, so as to make it as complete and comprehensive as possible.

From what we have seen of the book it is sure to be of practical value, both to the "student in his first mastery of dermatology, and to the general practitioner who desires a small and convenient work of reference." In its compilation much attention has been paid to therapeutics, and the formulary has been enlarged and brought up to date.

The index has been amplified so as to facilitate reference and to serve as a dictionary of synonyms and dermatological terms. A second index is intended to aid diagnosis. In it the entries of the numbers of the pages in heavy-faced type refer to the principal description of each disease, the others to particulars as to differential diagnosis.

Taking it all in all, we can heartily recommend Dr. Duncan Bulkley's neat little manual as a convenient, concise, and reliable aid to the study of skin diseases and their treatment. It is clearly printed and neatly bound, and costs six shillings and sixpence.

Atlas and Abstract of Diseases of the Larynx. By Dr. L. Grünwold, Munich. Authorised Translation from the German, edited by Charles P. Grayson, M.D. The Rebman Publishing Co. 1898.

This very neat volume consists of two parts, the first containing a very condensed account of the anatomy and diseases of the larynx, and the second of 44 coloured plates of diseased conditions as seen through the laryngoscope, and a few microscopic drawings. The Abstract of Diseases, when one considers the space into which it has been crammed, is well done. In fact, of the written part there is only one portion open to severe criticism, and that is about five pages devoted to the anatomy and physiological movements of the larynx. This description is in many places obscure, the sentences long and sometimes unparsable, and often where the meaning appears clear it is distinctly wrong. The coloured plates are very well done, and represent very faithfully typical cases of the various diseases. The plates and the short clinical history of the cases from which they are taken are the really valuable part of the work. We can recommend the book to anyone who wants a reliable and inexpensive atlas of diseases of the throat.

English-French Dictionary of Medical Terms. By H. de Méric, M.R.C.S., Eng.; Surgeon to the French Hospital, London, &c. London: Baillière, Tindall & Cox. 1899. Demy 8vo. Pp. 394.

This is the first part of a work which will include, not only an English-French, but also a French-English, Medical Dictionary. A much-felt want will be supplied by the publication of this work.

In the first part Mr. de Méric has endeavoured, as far as possible, to give for each English word or term its exact

French equivalent. In several instances, however, he has found it necessary to employ a French phrase to express an English word. These phrases are often definitions of the term in question, as, for example—"Biokinematics. La science des mouvements nécessaires à la vie." "Pocky. Qui est infecté de la petite vérole ou de la syphilis."

Pathology, surgery, anatomy, and physiology are naturally included in the title "Medical Terms," and so they find a place in the dictionary. The author has also included such biological, botanical, and zoological words as are met with generally in medical literature.

That the work is much more than a mere dictionary is evident from the fact that Mr. de Méric has specified the different methods of medical treatment, and also the various surgical operations under the names of their respective authors. Thus we find "Stokes' (Sir W.) operations. Opérations *(f. pl.)* de Sir W. Stokes: (1) Pour amputation au-dessus du genou; (2) pour excision de la langue; (3) pour pied plat; (4) pour bec-de-lièvre."

Mr. de Méric's dictionary promises to be, when completed, a meritorious and useful work.

Annual and Analytical Cyclopædia of Practical Medicine. By CHARLES E. DE M. SAJOUS, M.D., and One Hundred Associate Editors. Vol. II. Philadelphia, New York, Chicago: The F. A. Davis Publishing Company. 1899. 8vo. Pp. 607.

THE second volume of Dr. Sajous' Annual and Analytical Cyclopædia of Practical Medicine inaugurates the regular plan of the work. Thus all the articles have been prepared by their respective editors. This plan has produced articles of great value. Among these we may mention those on "Cerebral Hæmorrhage," by Dr. William Browning, of Brooklyn; "Cirrhosis of the Liver," by Professor Adami, of Montreal; "Cholera," by Professor Rubino, of Naples; "Cholelithiasis," by Professor Graham, of Toronto; "Diabetes," by Professor Lépine, of Lyons; "Diphtheria," by Drs. Northrup and Bovaird, of New York; "Deaf-Mutism," by Dr. Holger Mygind, of Copenhagen. There are many other articles of great merit in the volume, which runs from "Bromide of Ethyl" to "Diphtheria."

The book is beautifully printed and handsomely bound.

Physicians' Book for Private Formulæ: with Posological Table. Bristol: John Wright & Co. 1898.

In this tiny book the medical practitioner has a means of jotting down valuable formulæ and of making a note of new drugs and their doses, or of new applications.

A posological table is added, together with a list of external applications and their respective strength. Both are based on the British Pharmacopœia, 1898. Tables of the official weights and measures are appended. There is also a succinct account of the treatment to be pursued in cases of poisoning, with a list of poisons and their antidotes.

The Guide to South Africa for the use of Tourists, Sportsmen, Invalids, and Settlers. Edited annually by A. Samler Brown and G. Gordon Brown for the Castle Mail Packets Company, Limited. 1898–99 Edition. Sixth Edition. London: Sampson Low, Marston & Co. 1898. 8vo. Pp. 422.

It is our pleasing duty to chronicle the publication of the sixth annual edition of the Messrs. Brown's excellent guide to South Africa. A few fresh subjects have been introduced, and no pains have been spared to make the details correct and sufficiently ample. The book is a marvel of cheapness combined with accuracy. It should be in the hands of all intending visitors to South Africa.

Practical Organic Chemistry. By Samuel Rideal, D.Sc. (Lond.), F.I.C., F.C.S. Second Edition. London: H. K. Lewis. 1898.

The contents of this little volume form an excellent foundation for the superstructures of physiology and of materia medica, and should be welcomed alike by the teachers and students of these branches of study. The tests for the identification of each of the various organic bodies are clearly and concisely set forth, and are accompanied by a description of the chemical constitution and of the most important properties of each body. It is, however, hard to conceive why, in a work dealing with "some of the more important organic compounds," fats should be excluded from consideration. The book is, on the whole, a most useful little production, well printed and bound, and the matter is up to date. The typographical errors are few, the most notable being on page 6, "microscopic" for "microcosmic" salt; and, on page 102, "21 per cent." for "2 per cent." of urea in urine.

Third International Congress of Dermatology, held in the Examination Hall of the Conjoint Royal Colleges of Physicians and Surgeons, London, August 4th to 8th, 1896. Official Transactions. Edited by J. J. PRINGLE, Secretary-General. London: Waterlow & Sons, Ltd. 1898.

THIS bulky, unhandy octavo volume contains almost 1,000 pages, in which many valuable contributions to dermatology may be found by the student of medicine who is not discouraged by one of the most awkward volumes to handle it was ever our lot to read.

The executive council selected the following subjects for discussion in the section for dermatology:—Prurigo, Keratosis, the Connection of Tuberculosis with Disease of the Skin other than Lupus Vulgaris, Ringworm, and Erythema. In the section for syphilis the subjects were:—Syphilitic Re-infection, the Duration of the Period of Contagion of Syphilis, and Malignant Syphilis.

The list of subjects chosen by individual members may be said to include every form of skin disease from eczema to Madura foot, which latter is an elaborate paper under the joint authorship of Dr. Gerney, of Algiers, and Dr. Vincent, of Marseilles.

Professor Lassar, of Berlin, on the evening of the 7th of August, in the large theatre, demonstrated a new method of illuminating the os uteri. What the method was we are not told, and we fail to see the relevancy of the demonstration; but Professor Lassar is a German, and it were vain to find fault.

The Surgical Complications and Sequels of Typhoid Fever. By WILLIAM W. KEEN, M.D., LL.D. London: Rebman Publishing Co. 1898. 8vo. Pp. 386.

A SURGICAL work on enteric or typhoid fever is a novelty indeed. Although Dr. Keen is Vice-President of the College of Physicians of Philadelphia, it is in his capacity as Professor of the Principles of Surgery and of Clinical Surgery in the Jefferson Medical College, Philadelphia, that he writes this book. To his task Dr. Keen brings a ripe experience. On February 17, 1876, he delivered the fifth Toner Lecture on the surgical complications and sequels of the continued fevers, which was published by the Smithsonian Institution in March, 1877. Twenty years later, on June 9, 1896, he delivered the Shattuck Lecture before the Massachusetts Medical Society, the subject being, "Gangrene as a Complication and Sequel of the continued Fevers, especially of Typhoid." These two lectures formed the groundwork of the monograph before us.

The work is based upon tables of seventeen hundred cases compiled by the author and by Dr. Thompson S. Westcott, of Philadelphia, the Instructor of Diseases of Children in the University of Pennsylvania. It includes a chapter (XXI.) on the ocular complications of typhoid fever from the pen of Dr. George E. de Schweinitz, A.M., Professor of Ophthalmology in the Jefferson Medical College, Professor of Diseases of the Eye in the Philadelphia Polyclinic, and Ophthalmic Surgeon to the Philadelphia and Orthopædic Hospitals.

While the author generally renders honour to whom honour is due in his references, we notice at least three exceptions. Thus he makes no allusion to Dr. H. Colpoys Tweedy's interesting paper on "Periostitis following Enteric Fever," which was published in the fourth volume of the Transactions of the Academy of Medicine in Ireland (1886, page 37); to Sir George F. Duffey's instructive paper on

"Laryngeal Necrosis in Enteric Fever," published in the *Dublin Journal of Medical Science* for March, 1898 (Vol. CV., page 185); or to Dr. Finny's paper on a case of Laryngeal Ulceration in the advanced stage of typhoid fever, which appeared in the number of this journal for May, 1898 (Vol. CV., page 369).

To our mind by far the most important chapter in Dr. Keen's valuable work is the fifteenth, on "Intestinal Perforation in Typhoid Fever." In it will be found a table giving a list of eighty-three operations for this terrible lesion. There were 16 recoveries among the 83 cases, the result going to show that laparotomy offers a fair chance to about 49 per cent. of cases, while 19 per cent. of the whole would certainly have a good chance. The author points out, with due emphasis, the great danger of delay—"*If the operation is not done within about twenty-four hours after the perforation there is practically no hope of a recovery*" (page 227). He believes that "*when every case of intestinal perforation (except the moribund) is operated upon within twenty-four hours, we shall save at least one-third of the cases, and possibly more*" (page 319).

We may incidentally draw attention to the splendid series of photographs illustrating intestinal perforation, inserted between pages 216 and 217. In fact, the beauty of the plates and illustrations in general is a special feature of the work, which will prove most useful to all students of fever. The book is clearly printed—paper, binding, and general appearance reflecting great credit on the Rebman Publishing Company.

GLYCOSURIA CURED IN TWENTY-EIGHT DAYS.

M. MICHAUX (*La Dosimétrie*) reports the case of a man 58 years of age, who in 8 months lost 14lb. in weight. Analysis detected glucose to the extent of 40 grammes in each litre of urine. A slight change was made in the dietary of the patient, and the following pill was administered four times a day:—Arsenate of strychnin, ½ mg.; arsenate of iron, 1 mg.; benzoate of lithium, 2 cm.; guaiacum, 1 mg. The treatment was continued without interruption from the 24th of August to the 21st of September.—*Lyon Médical.*

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—Edward H. Bennett, M.D., F.R.C.S.I.
General Secretary—John B. Story, M.B., F.R.C.S.I.

SECTION OF SURGERY.

President—R. L. Swan, President of the Royal College of Surgeons of Ireland.
Sectional Secretary—John Lentaigne, F.R.C.S.I.

Friday, January 20, 1899.

The President in the Chair.

On Dislocations and Fractures of the Astragalus.

Mr. H. Gray Croly read a paper on astragalus dislocations and fractures, and gave a history of several very important cases which occurred in his hospital and private practice. One case of fracture of the body of the astragalus was caused by a horse falling on the man's foot, which was caught in the stirrup. Amputation was proposed, but refused by the patient, who subsequently sought admission into the City of Dublin Hospital. Mr. Croly excised the bone, and the man was enabled to resume his work as a groom. In the case of compound luxation of the astragalus forwards and outwards, the bone was completely displaced from all its attachments; the head and neck of the bone protruded. Mr. Croly excised the astragalus immediately; the accident was caused by the man jumping from a trap to save himself, the backband having broken; the man landed on his heel; the foot was forcibly inverted; the internal malleolus was completely buried; the patient made an excellent recovery, and can walk as well as ever. The third case was one of complete simple luxation of the astragalus forwards and outwards. The gentleman, who is in his sixty-ninth year, was walking down one of the principal streets about 11 a.m., he slipped off the kerbstone into the channel, violently twisting his foot inwards; he suffered intense pain; he fell, and was assisted up by a gentleman who was passing. This gentleman was treated for eleven days before Mr. Croly was sent for. On examination, as shown by the cast, the right foot was forcibly inverted, the head and body of the astragalus resting on the dorsum of the foot externally; the skin over the head of the astragalus was red and shining; the internal malleolus was completely buried, a deep groove taking its place; there were two sloughs on the outer side of the foot (ashy grey) and a large deep slough on the inner side of the foot; *there was no movement at* the ankle. The patient's health was much impaired, and Mr. Croly decided to put off operating until the health had improved and the sloughs separated. On March 5th, and about two months after the injury, as the patient's health was much improved, Mr. Croly, assisted by his son, Mr. Henry Croly (M.D., T.C.D., & B.Ch.), excised the astragalus by making an incision over the protruded bone; the superior articulating surface was directed outwards and had completely left its box. The bone was seized in a lion forceps. It had contracted adhesions and required some dissection for its removal. Immediately on the enucleation of the bone the muscles drew the foot into its normal position, and a suitable splint, with footboard, was applied. The patient made an excellent but somewhat slow recovery, and he now can walk without the aid of a stick; ¼ extra sole on the heel and sole of his boot makes up for the slight shortening; he has a movable ankle, but perfectly firm.

Mr. Lentaigne exhibited a cast of fracture of the astragalus. This particular injury was exceedingly rare. It was a fracture of anterior portion of astragalus, with displacement forwards and outwards of the fractured head of the bone, and was caused by jumping off a car. After an interval operation was allowed. The loose head of the astragalus was found to be completely detached from all structures except by a few threads of fibrous tissue. The head of the astragalus was reduced and the wound closed. The case was still in hospital, and would be exhibited, he hoped, later on.

Mr. W. I. Wheeler mentioned a case of dislocation of astragalus backwards, the result of a blow by a cricket ball on the front of foot when in the flexed position. Efforts to reduce the dislocation were unsuccessful; although it was never reduced the patient to this day has a most useful foot. The question of waiting until a slough occurs, or removing the bone, or touching it at all, was very important. It depended on the circumstances. He had seen cases of slight partial displacement which were left alone and the patients had very useful limbs afterwards. If the astragalus were displaced so much as to act as a foreign body he would advise immediate removal. Referring to a case under his care, mentioned by Mr. Croly, where the patient had fallen down the side of a mountain, and where the astragalus was removed about a month afterwards, he said that, curiously, the patient lost his mental balance. It was not traumatic delirium. Recovery ensued. Mr. Hancock's statistics of 109 cases of complete removal of astragalus for compound dislocation, simple dislocation, and disease showed 14·6 per cent. death-rate.

The President had seen one case of dislocation which was remarkable inasmuch as it bore out what Mr. Croly had said—the apparent facility with which the astragalus could be dislocated by accident. He had made several endeavours to imitate that force on the dead subject, because he had often had occasion to remove the astragalus for aggravated equinovarus in the adult. It is a very successful operation. In this operation he always had to remove the astragalus by piecemeal. He had never succeeded in getting the hammer and anvil described by Dr. Hadden. The result obtained by Mr. Croly seemed to show that the foot was really as good without the astragalus as with it.

Mr. Croly, in reply, said that Boyer thought that bony ankylosis between the tibia and os calcis was inevitable after excision of the astragalus. Dr. Smith, of Leeds, gave two cases where there was an excellent hinge-joint. The old patient which he exhibited had a movable ankle, but the younger a stiff ankle. With regard to immediate excision at Broca's line, he had sixteen deaths following immediate excision, but none following excision when the sloughs took place. It is a remarkable fact that if, when the astragalus is dislocated forwards, forwards and inwards, or forwards and outwards, it is not removed, it acts as a foreign body; but, if it goes backwards where it has plenty of room, it does not do any harm whatever. His strong opinion was that immediate removal of the bone with careful dressing of the wound was the proper treatment.

On a Case of Chronic Intestinal Obstruction.

Mr. John Lentaigne exhibited a patient from whom he had removed the cæcum and a small portion of the ileum for chronic intestinal obstruction, resulting from stricture at the junction of the ileum and cæcum. The patient, a girl aged twelve, had come under his care on April 16th, 1898. She was then in a very miserable condition, vomiting frequently and rejecting almost all food, and complaining of constantly recurring attacks of severe pain in the abdomen; the abdomen was greatly distended, and the attacks of pain were usually accompanied by visible peristaltic movements of the intestines, which formed large tumours under the parietes moving slowly in various directions. These attacks would last for one or two minutes, after which the patient would be free from pain. The bowels were very constipated, no motion ever coming except after the administration of purgatives followed by enemata. The illness had commenced two years before, and from then the girl had been steadily getting worse up to the date of the first operation. On April 22nd Mr. Lentaigne opened the abdomen in the median line. Huge coils of intestine, which proved to be the ileum enormously distended and with greatly thickened wall, came out at once. On passing the hand along this enlarged intestine it was found to end in a hard mass firmly bound down by adhesions in the right iliac fossa. Owing to the adhesions it was impossible to bring this mass into view, and as the patient was almost moribund before the operation, Mr. Lentaigne decided to give temporary relief by forming an intestinal fistula in two stages, after first emptying the distended bowel by enterotomy. On incising the gut two large basinfuls of peasoup-like fæces flowed out, and the intestinal cavity was irrigated and washed out with a stream of warm water; the opening was then closed by silk sutures, and the gut was returned to the abdominal cavity. When emptied and flattened out the intestine seemed to be about four inches across from convex margin to mesentery. The left hand of the operator was introduced into the cavity and directed well over to left side; it was then cut down upon and the bowel securely fastened to the opening by a few sutures passing through the parietal peritoneum, muscle and skin. The incision in the median line was closed with three layers of sutures, the two deeper of silk for peritoneum and muscle, and the superficial of catgut for the skin, covered by a layer of celloidin. The small opening on the left side of the abdomen was kept open by a plug of iodoform gauze, and on the third day after operation the fistula was made complete by an incision into the bowel. There was an immediate improvement in the patient's condition. The bowels acted themselves continuously through the fistula, and the vomiting and attacks of pain ceased almost at once. On June 27, as the patient had got into a good condition, and was anxious to be relieved of the annoyance of the fistulous opening, excision of the cæcum was performed, with end to end suture of intestine by Kocher's method. The bowels acted naturally four times on June 29, and almost every day after. There was considerable delay in the healing of this wound, as infection of the silk used in suturing the parietes seemed to have occurred, the silk slowly coming away through a small sinus at the upper end of the wound, and it was not completely healed until October, 1898. The intestinal fistula closed of itself as soon as the bowels acted normally, and on July 12th it had practically closed, neither fæces nor flatus coming through it. It was now represented by a firm, clean scar, no trace of the opening existing. The patient was shown to be in excellent health and condition, the bowels acting regularly every day.

Mr. Wheeler asked if Mr. Lentaigne was sure he was correct in giving the diameter of the small intestine as four inches. Regarding the fistulous opening, was it a form of colotomy that was performed? In his practice in colotomy he always supported the intestine by placing a glass rod underneath it.

Mr. Lentaigne, in reply to Mr. Wheeler, said that the diameter of the small intestine was exceedingly large, and appeared to be about four inches when made flat by evacuation of the contents of the gut. The opening was made into the small intestine above the obstruction, and was merely an intestinal fistula, not an artificial anus. He merely made an opening into the bowel, after having attached the bowel to the parietal peritoneum and skin. This was quite efficient as a means of relieving obstruction, and could be subsequently cured without trouble. The fistula, in fact, often closed without operation. It had always done so in his cases up to this, and he had had several in which he had employed this method. Another advantage was that the bowel below the fistula still functioned as far as possible, and did not, therefore, contract like the intestine below an artificial anus. Intestinal anastomosis by short circuiting was rejected at the first operation as much more dangerous than the procedure adopted, as the small intestine was enormously thickened and the colon contracted and thin-walled to an extreme degree.

The Section then adjourned.

SECTION OF MEDICINE.

President—John W. Moore, M.D., President of the Royal College of Physicians of Ireland.

Sectional Secretary—R. Travers Smith, M.D.

Friday, January 27th, 1899.

The President in the Chair.

A Case of Erb's Juvenile Form of Muscular Atrophy.

Dr. Langford Symes exhibited a case of juvenile muscular atrophy. The patient was a boy, aged eight and a half years. He was brought for advice for his "inability to walk properly," and is ailing since he was two years old. It began when he was learning to walk. If he fell he could not get up alone; he is now getting more helpless, cannot walk up stairs, and is unable to get in or out of bed.

The chief symptoms were:—1. Rather imbecile foolish expression and lack of intelligence; 2. Knee-jerks completely gone; 3. Lordosis on standing, and sometimes lateral curvature from muscular weakness; 4. He cannot lie down or get up off the floor without falling (totally unable to get up); 5. Extreme wasting of deltoids, pectorals, intercostals, trapezius, latissimus dorsi, and lip muscles; 6. Some slight hypertrophy of the calves and portions of the deltoids; 7. Walks with a "waddling" high action gait, with lordosis and a wide base; 8. High arched palate; 9. Mouth affected, cannot whistle (orbicularis).

The diseases resembled were:—1. Erb's juvenile form of muscular atrophy; 2. Pseudohypertrophic muscular paralysis in an atrophic stage; 3. Facio-scapulo-humeral type of muscular atrophy.—(Landouzy and Déjerine).

The diagnosis arrived at was Erb's juvenile muscular atrophy; and the

Distinguishing features were:—The shoulder girdle being badly affected; being a family disease (his mother's brother was similarly paralysed at seven years of age and died at sixteen years, never having walked); sensation normal; he has never had any general enlargement of the muscles, and the mouth being affected.

Dr. J. B. Coleman.—(*a*) A Case of Progressive Muscular Atrophy; (*b*) A Case of Anterior Cornual Myelitis.

The Clinical Features of Beri-beri.

Dr. Conolly Norman read a paper on the clinical features of beri-beri. He briefly referred to the uncertainty which still exists with regard to the pathology of the disease, to the difficulties which may occur in diagnosis, and to the unfamiliarity with its symptoms existing among European practitioners until recently. He then proceeded to analyse the symptoms in some detail. Heart troubles are the most serious. An invariable condition is tachycardia, with extreme irritability of the pulse. Unconformability of heart and pulse is frequent and striking. Variable murmurs most commonly heard in the pulmonary area are not infrequent, also reduplication of the first or second sound. The heart is frequently dilated and this dilatation, chiefly affecting the right side, often comes on with singular rapidity. Death from heart involvement is common, sometimes occurring quite suddenly, and in apparent convalescence, sometimes after a prolonged agony. The sensory symptoms, always occurring primarily in the lower extremities, and sometimes confined to the legs, consist of various degrees of superficial anæsthesia and hypæsthesia combined usually with paræsthesia and hyperæsthesia (painful anæsthesia). Deep (muscular) tenderness and tenderness of the nerve trunks co-exist with loss, diminution, or alteration of superficial sensation. Spontaneous pain (aching and cramps in muscles, painful formication in skin) are common. Œdema, in the speaker's opinion, is probably always present, though sometimes very slight and transitory. It varies in character, being usually less marked than in ordinary anasarca, say from Bright's disease, and sometimes approaching closely to the "solid œdema" of the myxœdematous state. It may be slight, fugacious, and confined to the pretibial region, or it may spread all over the body. Cases which are highly œdematous constitute the so-called "wet form" of beri-beri. Effusions into the joints are rare, but common in the serous cavities, especially in the pleura and pericardium. In the latter situation they often accelerate death, which may be also brought about or hastened by œdema of the lungs. The motor symptoms are paralysis of various muscles or groups of muscles. The muscles first attacked are usually those supplied by the peroneal nerve. The gait in well-marked cases is characteristically neuritic. The greater engagement and less resistance of the extensors gives the shifting equilibrium in standing, the dropped and inverted foot, the high action in walking (*démarche du stepper*). The paralysis rarely involves the upper extremities. The muscles of respiration not rarely suffer, particularly the diaphragm, a fact which constitutes one of the dangers of the disease. The muscles engaged tend to waste rapidly. When this wasting occurs after œdema has been slight and transient the "dry" or "atrophic" form of the disease is produced, but the wasting may coincide with extensive anasarca, only becoming manifest when the latter was abated. The combination of symptoms which the speaker described very fully constituted the clinical side of this disease, and he desired to point out the importance of recognising the affection which would certainly appear to be spreading and enlarging its habitat. Since 1894, when, as his audience were aware, it first appeared in the Richmond Asylum, epidemics have been reported from two asylums in the United States, a few cases strongly recalling beri-beri have been reported from German asylums, and an epidemic has occurred in the autumn of 1897 in an asylum in the South of France which attacked 150 patients, of whom about 40 died. Dr. Norman exhibited a number of photographs of beri-beri patients from the Richmond Asylum epidemics, showing the dropsical and the atrophic forms of the disease, showing also the peculiar dropping and inversion of the feet, and demonstrating the peculiar relaxation of the joints which occurs in this disease. For purposes of comparison, he exhibited some photographs of cases of alcoholic neuritis and tabes dorsalis.

Dr. Walter Smith said that when the diagnosis of the cases in the Richmond Asylum was first hinted at, it was scoffed at and ridiculed by some, and it was not till Dr. Patrick Manson (who was specially invited over for this purpose), Sir Thornley Stoker, and himself had prepared a report on the matter, that all doubt was set at rest. He considered that the diagnosis of beri-beri was easy only when it occurred in places where the disease might be expected, or when one was already familiar with it. Quite lately two Norwegian sailors, who came from Florida, were admitted to Sir Patrick Dun's Hospital. The main symptoms which they presented were a curious combination of motor, sensory, and trophic conditions which he thought would be hard to fit in with any other diagnosis than that of beri-beri. They would have been labelled probably as either cases of alcoholic neuritis, or perhaps some more high-sounding name, if the disease had not already been known in Dublin. It was a singular fact that on removing patients in the earlier stages of this disease to new surroundings they were likely to recover—a thing that would not happen in the case of other infective diseases. There was no use in removing a typhus fever patient to a place where there were no other cases of the same disease, though such a procedure was of benefit to the beri-beri patient. On account of this fact Dr. Manson supported the theory that it was due to a peculiar poison which was distilled, so to speak, from the soil, the building, and the surroundings in which the patient lived, and by removing them from these surroundings they removed the cause. He thought that the most interesting point in the morbid anatomy and clinical history of the disease was the remarkable and serious interference with the neuro-muscular apparatus of the heart. The only other disease offering a pathological parallel to this was diphtheria, for in that disease, like in beri-beri, the heart was often heavily hit, and an interesting comparison might be drawn between the cardiac symptoms of these two diseases.

DR. LITTLEDALE remarked that the appearance and disappearance of anæsthesia was a curious symptom. In a case he had under observation he discovered anæsthesia and analgesia over the shins and peronei muscles. On attempting to demonstrate this to a friend on the day after observing it, the patient immediately jumped on being pricked with a pin. On trying the electrical re-actions in this patient he found that a current which would cause most violent contraction in his own muscles would have little or no effect on the patient.

SURGEON-GENERAL POTTER inquired if the spleen, liver, or any other organ were enlarged in any of Dr. Norman's patients.

DR. DAWSON said he had had the opportunity of examining the phrenic and vagi nerves in a few of the Richmond Asylum cases, and he found these nerves degenerated, showing the ordinary lesions of peripheral neuritis. In some cases the myelin could be seen to be breaking up into globules.

MR. CROLY, DR. KNOTT, and DR. MARTLEY also joined in the discussion.

DR. NORMAN, replying, said that Manson's opinion that the poison of the disease lurked about the soil of buildings seemed to be supported by appearances. Several writers on the subject had pointed out the seeming liability there was to an outbreak of beri-beri where the soil had been recently turned over, and this led them to think that it was a miasmatic disease. Some even had gone so far as to say that it was malaria. In answer to questions, he said that he had not found the spleen or liver enlarged in his cases. He had not noticed any change in the hair or nails. He remembered one case in which the teeth had all fallen out, but he did not think this was due to beri-beri. One patient had exhibited a series of herpetic patches, which turned into bullæ, and left little ulcers after them. There were three or four cases ushered in by a curious eruption not distinguishable by him from erythema nodosum. He could not enlighten Mr. Croly as to why beri-beri should occur chiefly in asylums in this climate, and amongst the epileptics in those institutions. He was disappointed in the use of electricity in this affection, more so, since some writers on this subject have said that it was possible to diagnosticate beri-beri before other symptoms occur, by means of the electrical reactions. They had not found changes of any consequence in the spinal cord, which was disappointing, as other observers have stated that the cells in the anterior cornua were frequently found to be degenerated.

The Section then adjourned.

ROYAL ARMY MEDICAL CORPS.

The Director-General of the Army Medical Department has forwarded for publication the following list of successful candidates for commissions in the Royal Army Medical Corps at the examination held in London in February, 1899:—

Order of Merit	Names	Marks	Order of Merit	Names	Marks
1.	Delap, G. G.	2,393	13.	Murison, C. C.	2,052
2.	Warren, F.	2,388	14.	Onraet, H. B.	2,047
3.	Cunningham, R.A.	2,385	15.	Falkner, P. H.	2,043
4.	Crawford, V. J.	2,384	16.	Hart, H. F.	2,025
5.	Palmer, F. J.	2,375	17.	Winslow, L. F. F.	2,016
6.	Challis, O.	2,360	18.	Norman, H. H.	1,971
7.	Simson, H.	2,316	19.	Chopping, A.	1,935
8.	Stokes, T, G. N.	2,282	20.	Prescott, J. J. W.	1,930
9.	Butler, S. G.	2,151	21.	Elsner, O. W. A.	1,925
10.	Irvine, G. H.	2,140	22.	Webb, O. L. A.	1,914
11.	Woodside, W. A.	2,133	23.	Ellery, E. E.	1,899
12.	Blackwell, W. R.	2,109	24.	Nicholls, H. M.	1,846

INDIAN MEDICAL SERVICE.

The Military Secretary, India Office, has forwarded for publication the following list of the candidates for Her Majesty's Indian Medical Service who were successful at the Competitive Examination held in London on the 3rd February, 1899, and following days:—

		Marks Obtained			Marks Obtained
1.	C. Dykes	3,457	10.	A. B. Fry	2,708
2.	W. E. M'Kechnie	3,276	11.	E. C. G. Maddock	2,685
3.	E. D. W. Greig	3,275	12.	A. W. Tuke	2,682
4.	D. M'Cay	3,119	13.	F. C. Lewis	2,574
5.	J. J. Urwin	3,069	14.	M. W. Manuk	2,552
6.	W. F. Harvey	3,037	15.	W. H. Tucker	2,432
7.	H. D. Peile	2,990	16.	C. S. Lawson	2,390
8.	W. C. H. Forster	2,949	17.	J. H. L. Beaman	2,369
9.	D. H. F. Cowin	2,927	18.	W. H. Dickinson	2,295

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D. Univ. Dubl.;
P.R.C.P.I.; F. R. Met. Soc.;
Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

Vital Statistics

For four Weeks ending Saturday, February 25, 1899.

The deaths registered in each of the four weeks in the twenty-three principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Average Rate for 4 weeks	Towns	Weeks ending				Average Rate for 4 weeks
	Feb. 4	Feb. 11	Feb. 18	Feb. 25			Feb. 4	Feb. 11	Feb. 18	Feb. 25	
23 Town Districts	29·1	27·6	27·5	26·8	27·7	Limerick -	18·2	21·1	19·6	23·9	20·7
Armagh -	28·5	21·4	28·5	28·5	26·7	Lisburn -	21·3	25·7	17·0	25·7	22·4
Ballymena	16·9	16·9	28·2	22·5	21·1	Londonderry	29·8	25·1	23·6	33·0	27·9
Belfast -	28·4	29·0	29·4	24·1	27·7	Lurgan -	41·1	41·1	27·4	18·2	31·9
Carrickfergus	23·4	5·8	17·5	0·0	11·7	Newry -	28·2	64·4	20·1	24·1	34·2
Clonmel -	29·2	19·5	29·2	19·5	24·4	Newtownards	22·7	39·7	34·0	17·0	28·3
Cork -	42·2	25·6	32·5	27·0	31·8	Portadown -	18·6	6·2	49·5	43·3	29·4
Drogheda -	41·8	7·6	11·4	30·4	22·8	Queenstown	40·2	5·7	34·4	51·7	33·0
Dublin - (Reg. Area)	30·3	30·4	26·1	29·7	29·1	Sligo -	10·2	0·0	15·2	50·8	19·1
Dundalk -	8·4	33·5	4·2	29·3	18·9	Tralee -	22·4	11·2	23·0	22·4	21·0
Galway -	34·0	15·1	26·4	26·4	25·5	Waterford -	27·9	37·8	37·8	19·9	30·8
Kilkenny -	18·9	18·9	56·6	9·4	26·0	Wexford -	9·0	9·0	27·1	27·1	18·1

In the week ending Saturday, February 25, 1899, the mortality in thirty-three large English towns, including London (in which the rate was 21·5), was equal to an average annual death-rate of 20·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was 24·1 per 1,000. In Glasgow the rate was 25·2. In Edinburgh it was 26·8.

The average annual death-rate represented by the deaths registered during the same week in the Dublin Registration Area and in the twenty-two principal provincial Urban Districts of Ireland was 26·8 per 1,000 of their aggregate population, which, for the purpose of this return, is estimated at 1,012,148.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 1·9 per 1,000, the rates varying from 0·0 in fourteen of the districts to 5·6 in Tralee—the 4 deaths from all causes registered in that district comprising one from diarrhœa. Among the 143 deaths from all causes registered in Belfast are 3 from measles, 6 from whooping-cough, 2 from diphtheria, 2 from enteric fever, and one from diarrhœa. The 39 deaths in Cork comprise 3 from whooping-cough. The 17 deaths in Limerick comprise one from whooping-cough and one from diarrhœa.

In the Dublin Registration Area the births registered during the week amounted to 264—145 boys and 119 girls; and the deaths to 203—98 males and 105 females.

The deaths, which are 9 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 30·3 in every 1,000 of the population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the area, the rate was 29·7 per 1,000. During the eight weeks ending with Saturday, February 25, the death-rate averaged 28·5, and was 4·8 under the mean rate in the corresponding period of the ten years 1889–1898.

Twenty deaths from zymotic diseases were registered, being 3 over the number in the preceding week, but 4 under the average for the eighth week of the last ten years. They comprise 3 from scarlet fever (scarlatina), 6 from influenza and its complications, 2 from whooping-cough, 4 from enteric fever, 3 from diarrhœa, and one from erysipelas.

As in the preceding week, 12 cases of scarlatina were admitted to hospital; 9 scarlatina patients were discharged, 3 died, and 106 remained under treatment on Saturday, being equal to the number in hospital at the close of the preceding week. This number does not include 19 convalescents under treatment at Beneavin, Glasnevin, the Convalescent Home of Cork-street Fever Hospital.

The weekly number of cases of enteric fever admitted to hospital, which had risen from 19 in the week ended February 11 to 22 in the following week, fell to 14; 9 patients were discharged, 2 died, and 78 remained under treatment on Saturday, being 3 over the number in hospital at the close of the preceding week.

Three cases of measles were admitted to hospital; 5 cases of the disease remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system, which had fallen from 54 in the week ended February 11 to 40 in the following week, rose to 50, but this number is 6 below the average for the corresponding week of the last ten years. The 50 deaths comprise 31 from bronchitis and 15 from pneumonia.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N., Long.* 6° 15′ *W., for the Month of February,* 1899.

Mean Height of Barometer,	29·746 inches.
Maximal Height of Barometer (on 28th, 9 p.m.),	30·628 „
Minimal Height of Barometer (on 13th, 9 a.m.),	28·772 „
Mean Dry-bulb Temperature,	42·9°.
Mean Wet-bulb Temperature,	40·8°.
Mean Dew-point Temperature,	38·2°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·232 inch.
Mean Humidity,	84·4 per cent.
Highest Temperature in Shade (on 9th),	56·0°.
Lowest Temperature in Shade (on 27th),	29·0°.
Lowest Temperature on Grass (Radiation) (on 28th),	25·6°.
Mean Amount of Cloud,	55·5 per cent.
Rainfall (on 15 days),	2·168 inches.
Greatest Daily Rainfall (on 20th),	·488 inch.
General Directions of Wind,	S.W., S.E.

Remarks.

Stormy and wet during the first half of the month, the weather then became fine, dry, and seasonable, with a remarkably large diurnal range of temperature, particularly at inland stations in Great Britain—30° to 33° on the the 22nd, 23rd, 24th, 26th, and 27th. During the first fortnight depression followed depression from S.W., and the whole Atlantic seaboard was swept by fierce gales and deluged with rain. In mid-ocean, the barometer is said to have fallen to 27·50 inches. Violent N.W. gales and snowstorms occurred at the same time in North America, so that conditions were cyclonic, Europe receiving the warm S. and S.W. winds of the vast depression, and North America its cold N. winds. On the 20th a heavy fall of rain occurred over St. George's Channel, the Irish Sea, and the adjoining Irish and Welsh coasts. After that date the weather was practically rainless, a large anti-cyclone, in which the barometer rose above 30·70 inches, covering the whole of North-Western Europe.

In Dublin the mean temperature (44·0°) was 1·2° above the average (42·8°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 42·9°. In the thirty-four years ending with 1898, February was coldest in 1895 (M. T.=34·2°), and warmest in 1869 (M. T.=46·7°). In 1897 the M. T. was as high as 46·0°.

The mean height of the barometer was 29·746 inches, or 0·109 inch below the average value for February—namely, 29·855 inches. The mercury rose to 30·628 inches at 9 p.m. of the 28th, and fell to 28·772 inches at 9 a.m. of the 13th. The observed range of atmospheric pressure was, therefore, 1·856 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 42·9°, or 1·1° above the value for January, 1899. Using the formula, *Mean Temp.=Min.* + (*Max.* — *min.* × ·50), the M. T. is 44·0°, compared with a twenty-five (1865-1889) years' average of 42·8°. On the 9th the thermometer in the screen rose to 56·0°—wind, S.W.; on the 27th the temperature fell to 29·0°—wind, S.W. The minimum on the grass was 25·6° on the 28th—wind, calm.

The rainfall was 2·168 inches, distributed over 15 days. The average rainfall for February in the twenty-five years, 1865–89, inclusive, was 2·150 inches, and the average number of rainy days was 17·2. The rainfall, therefore, was slightly above, while the rainy days were below the average. In 1883 the rainfall in February was large—3·752 inches on 17 days; in 1879 also 3·706 inches fell on 23 days. On the other hand, in 1891, only ·042 inch was measured on but 2 days. The record of ·042 inch on 2 days is probably unparalleled in Dublin.

The atmosphere was foggy on 7 days—the 3rd, 17th, 18th, 19th, 26th, 27th, and 28th. The amount of cloud—55·5 per cent.—was much below the average—66 per cent. High winds were noted on 12 days, and reached the force of a gale on the 6th, 9th, 10th, 13th, and 14th. Lunar halos were seen on the 19th and 25th. Snow or sleet and hail fell on the 2nd. Lightning was seen on the 8th and 9th.

The temperature reached or exceeded 50° in the screen on 10 days, and it fell below 32° on 4 nights, compared with as many as 18 nights in 1895, only one night in 1896, and 7 nights in 1898. The minima on the grass were 32° or less on 14 nights, compared with every night in 1895, and 10 nights in 1898. The thermometer once failed—on the 3rd—to rise to 40° in the screen.

In Dublin the rainfall up to February 28th, 1899, amounted to 4·651 inches on 39 days, compared with 3·529 inches on 32 days in 1898, only ·714 inch on 16 days in 1891, and a twenty-five years' (1865–1889) average of 4·350 inches on 34·5 days.

At Knockdolian, Greystones, Co. Wicklow, 4·215 inches of rain fell on 18 days. The heaviest fall in 24 hours was ·820 inch on the 20th. The total fall to February 28th inclusive was 8·610 inches on 42 days, compared with 3·980 inches on 29 days in 1898, 5·190 inches on 37 days in 1897, and only 1·940 inches on but 17 days in 1896.

The rainfall in February at Cloneevin, Killiney, Co. Dublin, amounted to 3·35 inches on 14 days. The average rainfall for February during 14 years, 1885–1898, at this station is 1·465 inches on 13·2 days. The greatest rainfall in 24 hours was ·75 inch on the 20th. Since January 1 the rainfall was 6·28 inches on 36 days, compared with 3·32 inches on 29 days in 1898, 4·31 inches on 38 days in 1897, and 1·64 inches on 19 days in 1896.

At the Ordnance Survey Office, Phœnix Park, only 1·405 inches of rain fell. This was due to the prevalence of S.E. winds, from which the Phœnix Park is sheltered by the ranges of the Dublin and Wicklow mountains.

THE FOUNDLING HOSPITAL, MOSCOW.

DR. SOUTHARD (*Pacific Medical Journal*), who recently visited the Foundling Hospital, Moscow, states that:—Notwithstanding the care taken to save life, about one-half of the foundlings die within the first year; not over 25 per cent. reach maturity. This is not to be wondered at when it is understood that over 20 per cent. are sick when admitted; of the remainder 30 per cent. are very much under the normal weight; a large percentage have hereditary syphilis, and finally from 600 to 800 are premature births. From 20 to 25 infants die each day, gastro-enteritis and pneumonia carrying off the greater number. Incubators for premature births are used.

PERISCOPE.

TUBERCULOSIS IN DAIRY STOCK.

WITH the object of assisting dairy farmers in meeting the requirements of sanitary authorities under the present circumstances, the following suggestions are offered by the Royal Agricultural Society of England, under date February, 1899:—It is a matter of certainty that a notable quantity of milk which is sold to the public contains tubercle bacilli, and persons who drink it in an uncooked condition incur some risk of infection. In a small proportion of cases tubercle bacilli may be detected in milk by microscopic examination, and such milk is always highly dangerous. It ought to be clearly understood, however, that failure to detect the bacilli by microscopic examination of milk is not reliable evidence that such milk is free from the germs of tuberculosis. Tuberculosis, known also as consumption, wasting, and pining, is a contagious disease, and is spread by the introduction of the tubercle bacilli into the bodies of healthy animals along with the food or drink, and in other ways. Diseased cattle eject bacilli in coughing; also in the discharge from the mouth and nose, and in the manure. The disease in the advanced stage may be detected by an expert from the outward symptoms, but in the majority of instances there are no characteristic signs, and the tuberculin test is the only safe and nearly certain method of discovering the existence of tubercle, even when no indications are apparent. When it is intended to employ the test, the owner of the cattle should apply to the Principal of the Royal Veterinary College, Camden Town, London, N.W., giving the name of his usual veterinary adviser, to whom printed instructions will be sent. If desired, the name of a veterinary surgeon in the district will be suggested. Animals which react to the test, thus indicating that they are affected with tuberculosis, should be separated from those which do not react; a slight partition covered with tarred felt, to divide a shed into two parts, will suffice.

Hints as to the Means of Preventing the Spreading of the Disease.—All animals which are affected with diarrhœa, cough, or wasting, should be removed from contact with other animals. Overcrowding, imperfect ventilation, dirt, and darkness favour the spreading of the disease. An open air life is the most desirable for milch cows, and under such conditions tuberculosis shows very little tendency to spread. The cows should not be allowed to feed out of troughs in the pastures, but be taken into the sheds to have their ordinary manger-food. The cleansing and disinfection of cow-sheds is essential, and the free use of water is a most important part of the process. Sweeping and dry brushing, and the raising of dust, should be avoided. Tubercular disease of the udder ought always to be suspected when a painless hard lump, slowly enlarging, can be detected in one or more of the quarters. As to the course which the owner should take with regard to the reacting cows, it can only be said that the sooner they are sent to the butcher the better. As it is impossible to determine at what particular moment the udder may be invaded, and the milk become infective, a strict regard to sanitary laws would exclude the milk of tuberculous cows as unsafe for food, unless it had been effectually sterilised before distribution or use. That the decided effort which is now being made to arrest the spreading of consumption and other forms of tuberculosis in man will gradually lead to the enforcement of strict precautions against the sale of milk from tuberculous cows cannot be doubted; and it is of the utmost importance that dairymen should realise the necessity of doing everything in their power to eradicate tuberculosis from their herds. It has been proved that much can be done in this direction by the owner, with the advice and assistance of his veterinary adviser.

CONGRES PÉRIODIQUE INTERNATIONAL DE GYNÉCOLOGIE ET D'OBSTETRIQUE.

The Third Session of the International Congress of Gynæcology and Obstetrics will be held at Amsterdam, from the 8th to the 12th August, 1899. The questions arranged for discussion are as follows: 1. The surgical treatment of fibro-myoma. 2. The relative value of antisepsis and improved technic for the actual results in gynæcological surgery. 3. The influence of posture on the form and dimensions of the pelvis. 4. The indications for Cæsarean section compared to that for symphyseotomy, craniotomy, and premature induction of labour. Among those who have consented to take part in these discussions are Messrs. Doyen, Howard Kelly, and Schauta, who will treat the first question; Messrs. Bumm, Richelot and Lawson Tait, the second; Messrs. Bonnaire, Pinzani, and Walcher, the third; and Messrs. Leopold, Pinard, and Pestalozza, the fourth. The reports, with their translations in the official languages, will be sent to all the members a month before the opening of the congress. As regards private communications, preference will be given to those bearing upon the above-mentioned leading questions. Time will also be allowed sufficient for any demonstrations kindly afforded by the members. The official languages are:—English, French, German, and Italian. The subscription for membership is one guinea. Subscription forms and further particulars may be obtained from the Hon. Secretary for Great Britain and Ireland, Dr. Arthur Giles, 37 Queen Anne-street, London, W.

THE AYLESBURY DAIRY COMPANY.

The annual general meeting of this company was held on February 20th, at 31 St. Petersburg Place, Bayswater, W. The chairman, Mr. R. S. Bond, in moving the adoption of the report, said the gross profits amounted to £60,998, an increase of £3,000 over the previous year. By care and economy the directors had been able to reduce the expenditure by some £1,300, thus increasing the net profits of the year. The directors now propose to pay for the second half-year 9d. per share, making, with the interim dividend of 6d., 1s. 3d. per share for the year, or 6¼ per cent., and to write off £2,500 to be used in extending the business of the company. Referring to the question of tuberculosis, the chairman stated the herds of cows from which the company drew their milk supplies were examined by the Principal of the Royal Veterinary College, and any cow showing symptoms in the least degree suspicious was immediately drafted from the herd and subjected to the tuberculin test, the milk being, of course, stopped. The herds were also constantly examined by local veterinary surgeons, and therefore the danger of their customers being supplied with infected milk was reduced to a minimum.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

"Tabloid" Krameria and Cocaïn.

The value of rhatany in combination with cocaïn in the treatment of certain affections of the throat is well known, and has received official recognition. In relaxed sore throat, irritable conditions of the pharynx, bronchorrhœa, &c., this "tabloid" preparation enables the physician to secure the astringent and tonic properties of krameria with the sedative action of cocaïn. "Tabloid" krameria and cocaïn possesses marked advantages over gargles, in that it is portable, and thus conduces to regular treatment when the patient is pursuing his ordinary daily avocation. Its effect is not transitory, but continuous, because, as it slowly dissolves in the mouth, it bathes the affected parts with a concentrated solution, the therapeutic effect of which is quickly evident. In pleasantness and palatability it is in no way inferior to lozenges and similar preparations, which are not so effective and rapid in their action. "Tabloid" krameria and cocaïn is supplied in boxes of 30, and in bottles of 100, by Messrs. Burroughs, Wellcome & Co., of Snow Hill Buildings, London, E.C. It is to be remembered that cocaïn should not be lightly prescribed or its use continued too long, lest the "cocaïn habit" should be established.

Palatinoids of Phenacetin and Caffeïn.

MESSRS. OPPENHEIMER, SON & Co., of 14 Worship-street, London, E.C., have prepared palatinoids of phenacetin and caffeïn according to a formula which has been recommended to them by leading members of the medical profession as being practically a specific in cases of megrim, and also in cases of headache of gouty or rheumatic origin. Each palatinoid contains four grains of phenacetin and one grain of caffeïn citrate.

These palatinoids have been highly recommended in doses of two as a remedy in continuous headache, especially when occurring in women, one dose being quite sufficient to give considerable relief to the symptoms. The usual method for administration is for two palatinoids to be taken when the attack comes on, and a further two palatinoids every morning and evening between the attacks.

These palatinoids are dispensed by all the leading chemists throughout Great Britain and Ireland, and are supplied in bottles, each containing one gross, at 4/6 per gross.

NATIONAL COOKERY.

THE increased attention which is being given to the art of cookery and science of alimentation is evidenced by the fact that the leading chefs, including those of the households of Her Majesty the Queen and H. R. H. the Prince of Wales, are to be found in the Governing Body of the Universal Cookery and Food Association which has just held its eleventh exhibition at the Imperial Institute. One of the benefits of such an association is that it assists the public to select the best article in each department by the awards which it confers. For instance, to Messrs. Van Houten it has given the highest award (the Prix d'honneur) for both their cocoa and chocolate, thus certifying that the high standard of excellence for which their cocoa has for so many years been distinguished has also been attained by their newer preparation, Van Houten's eatable chocolate.

THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

MAY 1, 1899.

PART I.

ORIGINAL COMMUNICATIONS.

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ART. XVI.—*Morphinomania.*[a] By HENRY C. DRURY, M.D. (Dub. Univ.), F.R.C.P.I.; Assistant Physician, Sir Patrick Dun's Hospital; Physician, Cork-street Fever Hospital.

THE morphia habit, or morphinomania, as it lately had been styled, is a modern vice which has sprung up in our midst and apparently taken firm root. It behoves us, therefore, to study it carefully, whether as a vice or a disease, in all its bearings—its origin, its progress, its effects morally and physically, and the measures necessary to guard against it, to cope with it, and to arrest it.

The term morphinomania, as coined by Charcot, or morphinism, as used by Levinstein, signifies an uncontrollable craving for morphia by means of subcutaneous injection, which takes hold of the victim with a grip of terrible power, ever increasing its hold and dominion, and demoralising the mind, the senses, and the system of those who own its sway.

The first attempts at hypodermic medication were made by Mr. Rynd, of Dublin[b], in 1845, while to Mr. Wood in 1855 is due the popularisation of the method. Morphin is said to be less stimulating and exciting than opium, and its effects to be more lasting. One grain of the acetate of morphia is equal to about six grains of opium.

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[a] Read before the Medical Section of the Royal Academy of Medicine in Ireland, on Friday, March 10, 1899.

[b] Vide Dublin Medical Press, March 12, 1845. P. 167.

For a long time the almost identical vice of opium eating, including smoking and drinking, has been known and recognised as one of the great social evils of Oriental countries. In modern times, since travelling has become more universal and Chinese labour has been introduced into various parts, the coolies have brought their vice with them, and it has been taken up by a not inconsiderable number of the lower strata of society of these places, such, for instance, as San Francisco. But even in England opium has its victims, though not to such an extent as to obtrude themselves on society and be recognised as a great class of unfortunates. De Quincey maintains that in his time (1856) they were "a very numerous class indeed," and gives a long list of celebrities of the day known by him to indulge in the habit, stating also that in the humbler ranks of society "the number of amateur opium eaters was at this time immense," as he learned from the druggists; also he was informed by cotton manufacturers in Manchester that their work people were rapidly getting into the practice of opium eating. One of the characters in "Alton Locke" talks of buying "a pen'orth o' elevation," which is explained as meaning opium. It is said even now to be very much on the increase in several manufacturing districts.

Is morphia, then, going to take the place of opium and bring to us western peoples the horrors that we have been accustomed to associate only with the smoking dens of the East?

In the *Nineteenth Century* for September, 1887, Dr. Seymour Sharkey, in an able paper entitled "Morphinomania," sounded a note of alarm to the laity of these countries, and a warning that the use of morphia had already become a steadily-increasing habit, with very numerous victims in England, America, and France; that they walked in the best society, and took their "needle" in secret at the theatre or fashionable gathering. Already hospitals have been opened specially for the treatment of morphia habitués. There is one in Berlin,[a] organised by Levinstein, and one at Gratz in Styria with 300 patients.

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[a] Vide British Medical Journal. 1890. Vol. II. P. 812.

In Brooklyn[a] one has been opened for habitués of morphia, cocaïn, and chloral.

Dr. Norman Kerr in his work on "Inebriety" says—"The result of my observation is that the habit of morphia injection is undoubtedly on the increase." According to Jouet and Zambaco the practice of morphin injection has become almost a matter of fashion amongst the ladies of Paris and Constantinople, and presents are made of pretty syringes with silver and jewel-set cases, so that ladies can make reciprocal injections of morphin at any convenient opportunity. To show how little is thought of the habit abroad, a traveller relates how a lady in a railway carriage in the south of France "raised her skirt so as to expose the bare skin of her thigh immediately above the stocking and injected a syringe full of morphia, giving her fellow-passengers, who listened with intense interest, a long account of the subjective symptoms that would follow."[b]

According to M. Foville's estimate there were 40,000 morphinomaniacs in Paris in 1883. In 1893 there were, according to M. Dubut de Laforet, 100,000.[c]

One of the popular preachers in Chicago lately stated to his audience that there were in that city 35,000 persons who habitually took morphia. He believes that lately the number is diminishing rather than increasing since cycling became popular, for it has led many to seek, from fresh air and exercise, the relief from insomnia and worry which otherwise would have been looked for through the hypodermic syringe.[d]

The increase is not confined to our own and neighbouring countries. Western hurry has impressed on Orientals that opium smoking is a slow and clumsy method of attaining the end they desire, and so the hypodermic syringe is rivalling the pipe. Morphia injection was introduced into Shanghai as a cure, forsooth, for opium smoking. From this it was introduced into Hong Kong, and six months after there were twenty houses carrying on a systematic

[a] Vide British Medical Journal. 1891. Vol. I. P. 1393.

[b] British Medical Journal. 1892. Vol I. P. 187.

[c] British Medical Journal. 1893. Vol. I. P. 1026.

[d] British Medical Journal. 1895. Vol. II. P. 1371.

trade, each house with an average of fifty clients, who called regularly morning and evening for their injection. These injections were given by ignorant, unqualified persons at a charge of about one halfpenny, and the practice was growing with such fearful rapidity that happily the authorities had to take notice of it, and issued an ordinance making the practice illegal.[a] In 1895 we read that the consuls in China continually drew attention to the continued habit of injecting morphia by unqualified persons at several ports. Those who sell morphia and give the injections make a profit of from 200 to 400 per cent. One victim said, "It is much cheaper than opium smoking, and I get the same satisfaction out of it. I know of ten Chinese doctors, each of whom treats 50 to 100 men daily with this medicine."[b] In 1896 it is reported that the practice of injecting morphia by unqualified persons having been checked at Hong Kong, has spread to Singapore, and is becoming very prevalent on the mainland.[c]

It is quite evident, therefore, even allowing for some exaggeration in these statements, that morphinomania is increasing with terrible rapidity and spreading with fearful swiftness. There is equally little doubt that it is upon the members of our own profession that the greatest havoc is being wrought, as compared with any other class of the community. "Obersteiner, speaking of the prevalence of morphinism among the profession in Austria, hints broadly that, in his view, there is poetical justice in the fact that this fatal habit should work most havoc among the class of men who, by carelessly prescribing the drug, and instructing in the use of the hypodermic syringe, have been mainly instrumental in disseminating it."[d] Of Levinstein's 110 cases, 47 occurred in persons belonging to the medical profession or dependent on it: thus, 32 physicians, 8 wives of physicians, 1 son of a physician, 4 nurses, 1 midwife, and 1 student of medicine were among his patients. M. Lacassagne states that of 545 morphinomaniacs within his knowledge, 289 were doctors, or over 50 per cent. He says it is well known that several of the most distinguished men of the profession in Germany who have died in recent years were devotees to the fatal drug.[a]

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[a] British Medical Journal, 1893. Vol. II. Pp. 803 and 1135.

[b] British Medical Journal. 1895. Vol. II. P. 572.

[c] British Medical Journal. 1896. Vol. I. P. 1531.

[d] Foot. Morphinism. Dublin Journal of Medical Science. Dec. 1889.

Dr. Jules Rocard says that females and doctors are most addicted, and women delight in declaring how they indulge in the vice, and show with pride their ornamental syringes. Men take the greatest pains to hide their vice, so it is hard to estimate the precise numbers, but he believes that doctors and those associated with them form half the total male victims.[b] Dr. Macnaughton Jones agrees that medical men form the largest number of cases.

The question then arises, how do these morphinomaniacs contract the habit? In very nearly all cases we fear that our profession must bear the blame. The first introduction to the seductions of the drug can generally be traced to its administration by a medical man for the relief of pain, melancholia, or insomnia. This is where our responsibility arises, and where we should consider well before we grant that first introduction. It is questionable whether for melancholia or insomnia it should ever be given, especially by the hypodermic method, except as a last resort.

Some cases undoubtedly originate in other ways, but they are quite in the minority. A patient of Dr. Richardson told him that he took it first simply to see what it was like, and finding it pleasant, continued it till he found he could not live without it. In another case, related by Obersteiner, a physician could not believe in the ease and pleasure it gave to a patient suffering from cancer; he took one dose himself as an experiment, but it immediately awakened in him such a craving that he was never afterwards able to give it up. William Blair, author of "The Opium Habit,"[c] when reading De Quincey's "Confessions," shut the book after having read "the pleasures," and, without reading "the pains," he began deliberately to cultivate the habit, and soon learned the pains for himself with many a bitter regret! These may illustrate cases originating from *experiment* or curiosity, and doubtless many so arise. Some few may arise from

[a] British Medical Journal. 1893. Vol. II. P. 142.

[b] Cf. Union Médical. 1894.

[c] Harpur & Brothers. 1865.

imitation, as instanced by Dr. Foot, where "one could give no better reason for it than that a friend who lived in the house with him had recourse to it, and that he 'followed suit.'." At least one has arisen in a downright *criminal* manner—viz., where a husband induced his wife to take it, in order that he might get a divorce in the French Courts.[a]

It is fortunate that every constitution does not bear morphia well, that on some it does not produce that intellectual excitement and psychical pleasure which creates the inappeasable hunger, that on others even small doses produce great depression, sickness of stomach, hallucinations, and horrible dreams. Also, that as with alcohol, the strength of each individual's self-control largely determines whether, having once tasted the sweets, he is able to firmly lay them aside again. But it is not a drug to be trifled with, for if any of us cast our thoughts back over a few of the cases we know of, we may remember some big mind not unworthy of our admiration that has been helplessly bound and irretrievably shattered by the unbreakable fetters of this vice; so while still vaunting in the strength of our own self-control we will yet wisely decline to put it to the test. Some few striking instances are on record, as if to cheer the fallen but not to encourage the foolhardy, where victims have conquered through their own unaided strength. Dr. Blair[b] mentions the case of a man who used morphin for several years and gave it up after 65 days' struggle; it was ten months, however, before he began to get a little sleep. De Quincey continued the use, or abuse, of opium for 52 years. Four times he broke himself off it, but only for a few months at a time, and then continued it again. Finally he gave it up for ever. In his own words—"I triumphed, but infer not, reader, from this word 'triumphed' a condition of joy or exultation; think of me as one, even when four months had passed, still agitated, writhing, throbbing, palpitating, shattered."

Although it is hardly necessary here to draw a typical but imaginary picture of the usual mode in which the habit is induced, it may not be out of place to relate the actual facts in the case of a patient of my own. This gentleman, while on a visit to a relative in England who was a doctor, became suddenly ill and suffered severe pain; this was relieved by hypodermic injections of morphia. When leaving, this professional relative presented him with a hypodermic syringe and a tube of morphia tabloids, telling him to use them if he again got the pain. Up to this time, even though quite recovered, he had his "shot" at bed-time. After a short time he gave it up gradually of his own free will, but with some little struggle. Not many months after, while attending him for quite another form of illness, his wife came for me one evening as he was in pain, but on arriving we found him looking well and happy. He explained that he had had "terrible pain," and knew that he would be given morphia for it, so had saved himself the time and me the trouble by taking it himself. On expressing surprise at his having a syringe he related how he had got it; on my venturing to warn him of the dangers he courted he laughed me to scorn. Being a strong, able, intellectual young man, he had read De Quincey and knew all about it, scouted the idea of falling a victim and being unable to give it up at a moment's notice. Within three months, in spite of my constant effort and the constant efforts of all his friends, he was a confirmed morphinomaniac. Even after this short time, and though he was taking only from four to five grains of morphia a day, he had to leave his own home and go into a private hospital in order to effect a cure, which happily was accomplished, now two years ago. There the physical sufferings and the tottering of a fine intellect, as he grovelled on his knees to his nurse raving for morphia, were object lessons never to be forgotten.

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[a] British Medical Journal. 1891. Vol. I. P. 484.

[b] (Loc. cit.)

The quantity of morphia or opium daily taken by a habitué varies greatly, partly according to the length of time they have been taking the drug, partly owing to individual susceptibility. Christison mentions that "450 drops of the best laudanum have been taken by a gentleman unused to opium without any other effect than some headache and constipation; and, what is even more singular, his son, aged six years, took 60 minims of muriate of morphia without any apparent ill effect." Another case is mentioned of a young man who, reading of the visions produced by opium, and "yearning for the *large* excitement," took 60 grains at a dose, yet lived to tell the tale.[a] In certain diseases attended with pain enormous doses are tolerated. Dr. W. Smith[b] mentions that in a case of chronic rheumatism 48 grains of morphia have been given, and in another case of metritis with rectal fistula, 24 grains of the acetate of morphia were given in one day. He also quotes Fleming as mentioning a case in which 20 grains of morphia were taken at a dose, and another case in which the daily quantum rose to the almost incredible amount of 462·9 grains of morphia. This, however, at last proved fatal. Dr. Braithwaite[c] cites a case in which 40 grains were taken hypodermically in the 24 hours. De Quincey confesses to 8,000 minims of laudanum = 320 grains of opium, as his daily portion at one time of his life. In a case reported by Dr. Stuart, of New Zealand, the daily quantity injected for some months was 40 grains of the acetate of morphia.[d] A case is reported of a chemist who took 60 grains by hypodermic injection per diem.[e] Norman Kerr mentions the case of a female who drank one pint of laudanum daily, and swallowed 3 grains of solid opium at a single dose; also a case in which 20 grains of morphia were injected in a day in divided doses. In my own experience I have had one case in which 12 grains of morphia was the regular daily average, and another in which the regular dose was 15 grains supplemented frequently by solid opium. This case was an American sailor, who, from holding a high position, had sunk to the level of an ordinary seaman. He sailed from San Francisco for Liverpool having provided himself with 600 grains of morphia, 2½ lbs. of "gum opium," and a pound of "ymshi," to open when he used his morphia up. He calculated that by using only 15 grains a day his stock would last out till he got to Europe, leaving a little over in case of delay on the journey and until he got a fresh supply on this side. He explained that "ymshi" was the residue left in the pipe after smoking opium; this when rubbed up with water made a paste which he called "tinker;" by the addition of more water he was able to inject this hypodermically, but it was difficult to manage properly and caused abscesses. "Ymshi" could be obtained plentifully in San Francisco, where there are many smoking dens, and was very cheap. Having mentioned this Yankee, I may say here that he added several new words to my vocabulary—*e.g.*, he invariably spoke and wrote of the syringe as a "hypogun," and, of course, then the injection was a "shot."

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[a] North American Review. Vol. 95.

[b] Commentary on the British Pharmacopia.

[c] Medical Temperance Journal. Oct., 1887.

[d] Foot (loc. cit.).

[e] British Medical Journal. 1890. Vol. I. P. 1047.

These large doses are, of course, arrived at by degrees, tolerance being gradually cultivated. At the same time it is astonishing that the drug can be so quickly got rid of. It is well known that it is rapidly eliminated by the kidneys; it has also been well established by Hitzig[a] that morphia is excreted by the stomach after hypodermic injection, and it is quite possible that some may, as Diedreich has pointed out, be converted into some substances which have the property of, to some extent, counteracting the toxic effects of the drug.

The next question to be considered is *diagnosis*. This applies only to cases in which the vice is concealed or unsuspected. In such cases it is, as Dr. Foot says, rather a question of *detection* than of diagnosis. Not unfrequently the cause of the patient's condition in the early stages is not for a moment suspected by his or her closest relations or friends. It is most studiously concealed from the doctor and guarded by the most vigorous falsehoods if the question is approached. A lady under Dr. Wilson's care exclaimed, "I call God to witness I neither now have, nor have had since I began the treatment, any preparation of opium or morphia whatever." Within ten minutes afterwards sixty quarter-grain pills of morphia were discovered secreted under her bolster.[b]

The points to be noted are:—The face becomes pallid and pasty; anxiety, melancholy, and distrust are depicted on it; he wishes to be let alone, and so becomes unsociable and irritable; he is restless and shifty, and so loses the power of concentration and application to work; the appetite fails, and actual gastric disturbance is frequent; he sleeps little, and that little is disturbed by unpleasant dreams. The pulse reveals nothing unless a tracing is taken; it is said to be normal during the period of satisfaction, but when the patient begins to feel cravings for the drug the pulse curve shows a flat top. If such a train of symptoms arouses suspicion an examination of the urine[a] may now give some light. If morphia be found in it an excuse may be made to examine the patient stripped, then puncture marks of the needle may be seen, especially if looked for on the extensor aspect of the left fore arm or on the outer side of the right thigh and buttock. An abscess or small ulcer may be revealed, or even many such, with scars of old ones and stains. Dr. E. H. Bennett has frequently said in my hearing that if one comes across a subcutaneous abscess on the limbs or trunk, and, seeing no immediate cause for it, find its contents fœtid, suspect morphia injections; but failing all such definite proofs, if the suspected person can be isolated away from his own home, and closely watched so as to prevent him getting morphia, the craving will in due course appear if the suspicions are correct, and so unmask the case. Even then no reliance can be placed on the statements of the patient as to either the amount or the frequency of the dose. Where there has been concealment the physician must be very certain of his ground before making a diagnosis of morphinism, seeing that it may involve the patient with the charge of gross untruthfulness. In many cases the diagnosis is not difficult. One patient I have seen, a gentleman by birth and education, was in the habit of carrying a piece of dirty newspaper in his pocket, and after each injection tore off a small piece, moistened it on his tongue, and applied it over the puncture. His arms were in consequence one mass of festering sores, scabs, pus, and newspaper associated in sickenihg combination. Another patient, the Yankee before-mentioned, had hundreds of scars, blotches, and sores scattered over his body. These were to be found on all parts of the arms from the wrists up, all over both legs from the ankles up, all over the trunk, except a triangular area on the back, having the angles at the two shoulders and upper lumbar spine. In the groins the marks were particularly numerous, and he explained this by saying that he felt the effect more quickly there than anywhere else. The marks consisted of (1) bluish stains very similar in size and appearance to "*taches bleuatres*;" in some parts these were as close together as the pits of smallpox, but I am at a loss to explain them, unless the pigmentation was due to "ymshi;" besides these there were (2) an enormous number of pitted scars from small ulcers, together with (3) actual abscesses and ulcers in all stages, and (4) recent punctures also, appearing as small red dots.

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[a] Berlin. Klin. Woch. 1892. No. 49.

[b] Cf. Foot (loc. cit.).

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[a] Cf. Wynter Blyth. "Poisons; their Effect and Detection." 1884. P. 292, &c.:—

"The method adopted by Dragendorff to extract morphine from . . . . . . urine is to shake the liquid (acidified with a mineral acid) several times with amyl alcohol, which, on removal, separates urea and any bile acids. The liquid thus purified is then alkalised, and shaken up with amyl alcohol, and this amyl alcohol should contain any morphia that was present. On evaporation it may be clear enough to admit of identification, but if not it may be redissolved and purified on the usual principles." [That is, dissolve in acidulated absolute alcohol, filter, evaporate the filtrate to dryness, dissolve in water, make alkaline, and extract again with amylic alcohol.]

Tests (p. 280).—1. *Production of Morphine Hydrochloride.*—A solution of iodine dissolved in hydriodic acid gives, even in extremely dilute solutions, a precipitate. The crystals are dark red in colour, very definite in form, either free, or collected in little radial groups.

2. *Iodic Acid Test.*—Dissolve in the least possible quantity of water, with the assistance of one or two drops of hydrochloric acid; mix with a very little starch paste, evaporate in porcelain dish, at a gentle heat, to dryness. After cooling, add to the dry residue a drop of a solution of 1 part of iodic acid in 15 parts of water; if $\frac{1}{10000}$ of a grain of morphine be present a blue colour will be developed.

No ptomaine has been obtained, which *both* liberates iodine from iodic acid, *and* gives with iodised hydriodic acid a precipitate of the definite and identical form of morphine hydrochloride. Therefore, both reactions above (but not necessarily one alone) are proof of the presence of morphia.

The *effects* of the abuse of morphia are fairly well known in the abstract, but it may serve some useful purpose to consider them somewhat briefly in detail. At first, as a rule, the injections give genuine pleasure, but this soon becomes short-lived, and, after a regularly shortening interval, is succeeded by a restlessness and craving which can only be appeased by another dose. Very soon, therefore, it is in order to allay this craving—"the terrible feeling," "the horrible sensation," as some victims express it—that they seek a fresh injection, and not for the pleasure that it imparts. To avoid a too rapid shortening of the interval the strength of the dose has to be increased, and thus enormous doses are arrived at. The first effect of the dose is stimulating and exciting, brightening up the dormant faculties, and awakening any energy the frame is capable of, but this stage is soon succeeded by a feeling of calmness, and then by dulness and stupor, soon to be arrested by a renewal of the restless craving; these latter stages being very much longer than the one of excitation. The general condition is one of fatuous listlessness—in fact, in the later stages of the habit excitation may almost be said to be absent. Thus any of the business of life to be accomplished by the habitué must be attempted with the immediate aid of the needle—he is absolutely its slave. More and more the appetite becomes capricious, until it is altogether lost, so that it is with difficulty he can get the stomach to take food or to retain it. Once the habit is fairly established there is no diminution of the secretions, and the bowels, instead of being constipated, are regular or even relaxed. Sleep, however, is greatly interfered with, it becomes broken and fitful, and is disturbed by horrible dreams, so that he actually dreads the approach of nightfall. All these conditions tend, less rapidly than might be expected, but none the less surely, to bring about impairment of the nutritive processes, nerve exhaustion, enfeebled mental capacity, general wasting and emaciation, terminating in insanity or death.

Besides these general ill effects, there is produced in men impotence and sterility, and in women amenorrhœa, sterility, and gradual atrophy of the genital organs.[a] As with almost all other inebriates, "love is transformed into hate, and he not unseldom loathes the sight of the devoted companion whom, in his pre-narcotic days, he cherished with the tenderest devotion;" and with opium "so intense is the crave that a man has been known to mortgage his mother and sell his wife to gratify it. One man sold his wife for £12, and smoked the proceeds."[b] Albuminuria is frequent, and uræmia not uncommon. Huchard reports ten cases of albuminuria in morphinomaniacs ending in uræmia, and Lauenstein reports six or seven similar cases.[a] The wretchedness, misery, despair, and actual poverty induced by this absorbing vice not rarely leads the bond-servant to suicide, and this appears specially to be the case since cocaïn came into use.[b] Many, indeed, seek to break their bondage by substituting another drug, such as cocaïn or chloral, only to find themselves doubly bound by, if possible, a stronger and more deplorable vice. A minor evil which these unfortunates suffer is the formation of abscesses and ulcers at the site of puncture; this is almost invariable sooner or later, as the familiarity which breeds carelessness leads to the use of dirty, uncleaned needles. This, indeed, in the case of the gentleman already mentioned who used newspaper to cover the punctures, was the immediate cause of death; though broken off his morphia, he developed vague symptoms, with an erratic febrile temperature, ending in pulmonary complications, jaundice, and death. A *post-mortem* examination revealed a large fœtid abscess in the region of the tail of the pancreas; this had burrowed into the spleen, and opened into the colon. There were scores of small abscesses, varying in size from a pin's head to a large pea, scattered throughout the substance of the liver, and a similar condition in both lungs, together with large areas of consolidation. Another accident which frequently happens is the injection of the drug directly into a vein. The symptoms that follow this accident are striking, and so alarming that it may not be out of place to give them here. In about 30 seconds an intense tingling sensation is experienced in the palms of the hands and soles of the feet, soon accompanied by profuse sweating and intense throbbing, first over the forehead, then over the whole head, with excruciating pain as if the skull would burst asunder. The face becomes first deeply flushed, then cyanosed and swollen, the eyes fixed, staring, and bloodshot, the pupils generally dilated, as if over-stimulation had paralysed the ciliary nerve of the pupil sphincter. The action of the heart is then rapid, irregular, and feeble, and the breathing rapid and very shallow, as the least sigh seems to aggravate the intense cerebral pain. These symptoms last about 15 to 20 minutes, varying with the amount of the dose, then gradually pass off. Though the patient may have experienced these symptoms several times, and be quite aware of what has happened, they cause the greatest alarm to him and to anyone who may be witness of them.

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[a] British Medical Journal. 1893. Vol. I. Epit. 181.

[b] Norman Kerr, "Inebriety."

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[a] British Medical Journal. 1890. Vol. I. P. 1275.

[b] British Medical Journal. 1890. Vol. II. P. 812.

It is said by some that the morphinomaniac becomes not merely a bodily and mental wreck, but also a striking moral wreck. I believe that this statement is much too sweeping, It is granted that many, if not all, when the drug is withheld, will go almost any length to obtain it. Coleridge hired men to prevent him from getting opium, and dismissed them if they did their duty; he put himself under medical care to be cured of his vice, and pretended to be getting better, but all the time procured laudanum by stealth. There are plenty of instances of highly pious and honourable persons who, having become addicted to the drug, descended to lying, stealing, and cheating in order to obtain it, but if we look on that as part and parcel of their vice, we need not strip them of every shred of morality they ever had. It may not be said of all, but I believe it can be said of some—they were born gentlemen, they will die gentlemen, no matter to what depth of misfortune they have fallen.

The next and most important consideration is the *treatment*. Can these unfortunates be saved? They can, but the chances are against them. Foot says, "Emancipation from morphin slavery is unattainable by voluntary effort." "Jaeckel is unaware of any successful case of self-treatment in morphinism, and does not advocate its being attempted, even in the case of medical men." I have only found one case attested in which a chemist, who had taken up to 60 grains of morphia a day, gave it up in October, 1880, and in October, 1890, was still free, never having taken it in the meantime.* It is obvious, therefore, we must assist them to do what they cannot do themselves. We must never forget the fiery ordeal, the terrible battle they have to fight before they can gain deliverance. The wretchedness and enfeeblement of mind and body will need unfailing sympathy, firmness, gentleness, and tact on the part of both physician and attendants to enable them to bear up and fight a *victorious* battle.

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* British Medical Journal. 1890. Vol. I. P. 1,470.

Of the methods, there are two which may pass without consideration—the *deceptive*, which is puerile; the *substitution*, which is culpable. Cocaïn is the drug which has been most used as a substitute for morphia. Erlenmeyer, who has had a very large experience, comes to the following conclusions:—(1) That it does not stop the morphia craving; (2) that its effect is very transitory, lasting only from 12 to 25 minutes; (3) that cocaïn is a real substitute for morphia, and not an antidote; (4) that it should not be given, as its effect is so temporary and its use is dangerous, and very liable to develop a habit which is worse than morphinism. The other methods of *demorphinisation*, as Charcot calls it, consist in simply withholding the drug in one of three ways:—(1) The abrupt, or Levinstein's[a] method; (2) the *rapid*, or Erlenmeyer's method; and (3) the *gradual* method.

Whether the habit has been of long or short duration the withdrawal of the drug is followed by a train of symptoms classically known as *Abstinenz-symptome.* In some cases they are much more severe, and appear with greater rapidity than in others. Some endure them quietly with silent fortitude, others with abject and apathetic despair, but with most there is constant restlessness, tramping excitedly up and down the room, wringing their hands, shouting, moaning, bewailing, entreating for the drug which alone can allay their sufferings. These sufferings are of various kinds—a peculiar uneasy sensation in the muscles; a "horrible sensation," as one patient called it, and could give no further description, though he had no mean command of language; also agonising pain in the bones and the neighbourhood of the joints, "as if he had been beaten with sticks or the bones broken." Again, intense pain of gnawing character in the stomach, "as if rats were gnawing at his stomach"—the very expression used by Mr. Addington and Dean Carlisle—as the patient pointed out to me afterwards when he read De

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[a] Of the Schömberg Insane Asylum, Berlin.

Quincey. There is great irritability of the stomach, so that little or no food can be retained. Frequently there is polyuria, causing intense thirst, and commonly there is profuse diarrhœa, which may, indeed, become so excessive and exhausting as to threaten life. I have been forced to stop the treatment, and give liberal doses of opium to check this dangerous symptom, but it was given in the form of pill, not by hypodermic injection. This stage of excitement is gradually replaced by a condition of profound exhaustion, through which the sufferings still continue; frequently hallucinations and delirium appear, with marked tremor, closely resembling the *delirium tremens* of alcoholism. Sleep is absolutely banished, and as food cannot be retained the patient is in a few days reduced to extreme prostration, which may end fatally even if he has survived so long. Indeed, Dr. Levinstein, who advocated the abrupt withdrawal method, says, "They most frequently become violent and suicidal, and out of a large number only 25 per cent. recovered."[a] These symptoms are then so grave and alarming that the *abrupt* withdrawal method cannot be advocated except in rare instances, where the patient is strong and robust, where the habit has not become confirmed by long use, and the dose has not been excessive. Erlenmeyer, recognising the gravity of these *Abstinenz-symptome*, advocated the *rapid* withdrawal method, cutting off the whole supply of morphia by largely diminishing doses in from 6 to 12 days. This method, however, though preferable to the abrupt method in that the danger is diminished, leaves much to be desired; the *Abstinenz-symptome* appear, and though temporarily a little allayed at each injection, do not disappear, and the patient's sufferings are really prolonged. Erlenmeyer himself recognises this, and in 1896 wrote that "for three years he had abandoned the method associated with his name."[b] The *gradual* method is then the one which has found most favour with those in a position to form the best judgments. A case of Dr. Braithwaite's will best illustrate this method. The patient was in the habit of taking 40 grains of morphia a day.[a] The treatment began with 30 grains, and gradual reduction took place till the 42nd day, when none was given. The injections were given only three times daily; he got 30 grains of bromide of sodium at night, and ʒi. of Easton's syrup three times in 24 hours.

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[a] Scribner's Monthly. Vol. XX. P. 416.

[b] Prog. Medicale. Aug. 1, 1896.

One other plan of very gradual withdrawal may in some cases be useful. A solution is obtained of the drug, of the same strength as that used by the patient. Every syringeful withdrawn from the bottle is replaced by an equal quantity of distilled or boiled water. By this means the dose is diminished by infinitesimal degrees, till at last the patient is getting practically none of the drug at all.

From what has been said it is obvious that it will be almost an absolute necessity for treatment that the patient is removed from his own home and placed in a special home where he can be watched and nursed. It is very exceptional to find any case of successful home treatment of morphinism. It is better that he should not associate with any other patient suffering in the same way, as they will constantly talk of themselves, their doses, and pains, and will often plot to carry out some deception to obtain their drug. Besides this, the more the thoughts and conversation run on morphia the harder it is to recover the lost will-power that is so necessary for the struggle. Their surroundings should be comfortable, bright, and cheerful. Their medical and nursing attendants should be attentive, kind, firm, and sympathetic. A good, tactful female nurse is much superior to a male nurse. In a case in which the habit was not of long duration, and the daily dose was only 4 to 5 grains, I adopted the abrupt plan. The patient was controlled, and tided over his period of misery, raving, violence, and despair by a young, physically weak, but firm, kindly, and sympathetic nurse. He was in a private hospital and not under restraint. It is almost certain that with a male nurse, or with any

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[a] Treatment extending over 41 days—usual dose 40 grs. per diem:—

1st, 2nd day	30 grs.	9th–16th day	4 grs.	32nd–36th day	1 gr.
3rd „	12½ „	17th–23rd „	3 „	37th–41st „	½ „
4th–6th „	7½ „	24th–27th „	2 „	42nd–56th „	0 „
7th, 8th „	6 „	28th–31st „	1½ „		

One injection thrice daily; 30 gr. Na. Br. each night; ʒi. Easton's Syrup thrice daily.

physically strong but less sympathetic attendant, he would have thrown aside all control, left the house, and taken again to his "needle," if he had not done worse by using violence to himself or others.

Besides these general considerations of the treatment, there are some particulars that should receive further attention. While diminishing the dose of morphia valuable help may be obtained from atropin; it arrests the profuse secretions, tending to prevent the occurrence of diarrhœa, and is said to materially allay the *Abstinenz-symptome.* It is recommended to begin with $\frac{1}{300}$ grain sulphate of atropin, and to gradually increase the dose, watching closely its effects.[a] Dr. Gerard Smith recommends sulphate of spartein to lessen the abstinence storm, and when the pulse shows severe tension nitro-glycerine or nitrite of amyl gives rapid relief. Dr. Fleming recommends that when insomnia is very protracted, tr. of cannabis indica in ʒss. to ʒi. doses should be given at bed time. The bromides are of decided use in the treatment of the case, and may be given in large doses. Dr. Neil Macleod reported two cases in which a well-established habit was cured by bromide poisoning.[b]

The best drug for insomnia is trional, given in 40 grain doses to adult males, 30 grains to females. Sleep follows in from three to four hours, lasts on an average seven to eight hours, and is sound, dreamless, and refreshing. Dr. J. B. Mattison, of the Brooklyn Home for Drug Habitués, says[c]:—"We use it exclusively for the first six or eight nights, decreasing it gradually to half the initial dose. For the insomnia of morphia habitués it is the most valuable soporific we now possess." He advises that when pain is present it should be combined with codein, and thus it gives satisfactory results.

Erlenmeyer has given a very important contribution to the treatment of demorphinisation.[d] He has found by means of the stomach tube that where morphia has been taken there is a great excess of HCl. in the stomach. This is due, he believes, to the previous narcotic effect of the morphia on the glands, and the dulled sensibility of the nerves, as the morphia is excreted by the gastric glands. When, however, the narcotic source is suddenly cut off, the reverse of this condition obtains. There is hyper-secretion of the glands, and the nerves become hyper-sensitive, hence the extreme gastric and nervous symptoms. He, therefore, keeps the gastric contents neutralised with large draughts of 0·35 per cent. solution of bicarbonate of sodium, with the result that he has treated 30 cases in this way with the total absence of gastric and nervous symptoms, although the craving for the drug still remains.

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[a] British Medical Journal. 1894. Vol. I. Epit. 97.

[b] British Medical Journal. 1897. Vol. II. P. 76.

[c] Prog. Medical. August 1, 1896.

[d] Medical Record. December 11, 1893.

Though it is rare to meet with pregnancy in a morphinomaniac, it does occur, and in such a case great care should be exercised, as any attempt to withdraw the drug is almost sure to be followed by abortion or miscarriage. It should also be remembered, as pointed out by Erlenmeyer, that infants born of mothers addicted to morphia are affected with *Abstinenz-symptome*. They are, in fact, congenital morphin habitués, and as soon as they are separated at birth from their source of supply are liable to serious troubles, such as complete insomnia, which in one case lasted for 60 hours.[a] This is quite borne out by the fact that morphia has been found in the blood of the umbilical vessels and fœtal placenta of a new-born child whose mother was a morphinist.[b] Again, should a morphinomaniac be seized by any acute or sub-acute illness his morphia must be continued, as if stopped symptoms may arise which may puzzle the physician and seriously endanger the patient's life. The case is related in the *Lancet* of a medical man, a morphia habitué, who got pneumonia. Most alarming symptoms of dyspnœa, cyanosis, weak and irregular heart action, and excessive rapidity of pulse, caused the greatest anxiety for the result, and it appeared that a fatal issue was prevented only by a recognition that these were *Abstinenz-symptome* of a morphinist rather than due to the pneumonia, and by a prompt recourse to the stimulant for which the system was craving.

The consideration here of the treatment for an overdose of morphia or opium may not be out of place. The most usual practice is the administration of an injection of atrophin, say $\frac{1}{60}$ grain, as an antidote, strychnin as a cardiac stimulant, black coffee and caffein as a stimulant and to counteract the tendency to sleep, together with other plans to keep the patient from falling into deep narcosis and cardiac failure. Without wishing to discuss all or any of these as to their value or otherwise (and some may be open to discussion), there is another method of treatment which does not seem to be recognised and utilised as freely as it deserves. In 1894 Dr. Wm. Moor pointed out the value of permanganate of potassium as an antidote to morphia.[a] In 1896 Dr. A. P. Luff, Lecturer on Forensic Medicine in St. Mary's Hospital, published a very full article on the subject.[b] He mentioned 35 cases of Moor's successfully treated in this way, and 6 cases recorded in this country, of which 5 recovered. In the fatal case one pint of laudanum had been taken a considerable time before the remedy was given. The main facts of each of the 5 cases are also set out. He made 4 experiments with vomit, to which was added morphia, and then treated with permanganate of potassium. After each of the 4 experiments clinical examination failed to reveal a trace of morphin in the vomit. These experiments and the chemical tests were carried out with strict scientific care, and the various steps are given in detail. Dr. Moor experimented on himself, and, though very susceptible to opium or morphia, was astonished at the results he obtained, taking up to 6 or 8 grains of morphia by the mouth, followed by permanganate of potassium solution, without experiencing any ill effects. Surg.-Capt. Stanly Walker[c] recorded a case in which 16 grains morphia sulphate had been taken, treated by permanganate of potassium, and resulting in recovery. Dr. Nathan Raw[d] recorded 5 cases. Surg.-Capt. Maynard reported 19 cases treated in Calcutta.[e] Some of these died owing to the time that elapsed before treatment. No ill effects were observed from the permanganate, even on *post-mortem* examination. There were no symptoms of irritation or subsequent inflammation of the stomach.

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[a] Jouet. P. 41.

[b] Bureau. Report Universal d'Obstet. et de Gynécol. Aug. 25, 1895.

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[a] New York Medical Record. February 17, 1894.

[b] British Medical Journal. 1896. Vol. I. P. 1193.

[c] British Medical Journal. 1896. Vol. I. P. 82.

[d] British Medical Journal. 1895. Vol. II. P. 76.

[e] British Medical Journal. 1895. Vol. I. P. 1194.

About 1 grain of permanganate in 1 pint of water is given for each grain or fraction of a grain of morphia. If the quantity taken is unknown, give 6 to 10 grains of permanganate. This must be continued for one to two hours, as morphia already absorbed is again excreted by stomach. The action of the potassium salt is a purely local one; it cannot be regarded as an antidote, nor will it save life where a lethal dose has been absorbed and taken into the circulation. It is of unquestionable use where opium or morphia has been taken by the mouth, and even where an overdose has been taken hypodermically it should be given also, as the morphia is undoubtedly rapidly excreted by the stomach and re-absorbed, but this would be prevented by its being destroyed by the permanganate. No good could be expected from hypodermic injection of the potassium salt as Dr. Moor[a] has advocated, as it would be decomposed at once by the organic tissues and fluids of the body before it could get into the circulation to destroy the morphia. However, though we cannot expect so much from it in cases of poisoning by hypodermic injection as in cases where the drug has been taken by the mouth, it is well to bear it in mind.

For such an enslaving habit as morphinomania there should be even a more earnest consideration of prophylactic than of curative measures. Most of the blessings that Nature has placed within our reach may, by improper use, be turned into evils. Opium is one of these blessings. The immortal Sydenham is said to have stated that he would not practise his profession if he could not administer opium. We have seen its evils, and it is undoubtedly mostly through the agency of our profession that both its blessings and evils come about. We cannot give up the former because of the latter, so it is our bounden duty to do all in our power to guard against it. Unless in a case of fatal illness we should never give a hypodermic injection of morphia if we think it can be done without, or if sufficient relief can be obtained by any other form of medication. Never allow a patient to inject himself; never give a prescription for morphin if it is possible to avoid doing so; but if it is necessary, endeavour to prevent its repetition without your authority. Legislation might aid us in lessening the evil by more rigorous laws regarding the sale of the drug—*e.g.*, great good might be done if it were made illegal for pharmacists to repeat a prescription for morphia (cocaīn or chloral) unless it bore the signature and date of a medical man ordering it to be so repeated, and the renewal countersigned by the pharmacist.

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[a] New York Medical Record. March 2, 1895.

With the exception of mentioning that in 1897 a French civil law court established a will made by a morphinomaniac,[a] we will not go into the medico-legal aspects of the case.

In concluding, I would again say:—Let us guard against ever making a victim to this terrible vice, and if we meet with one, even though he be reduced to the lowest state of social degradation, let us hold out a helping hand with sympathy. In Dr. Norman Kerr's words, "Let the beginning of the helpless victim's intemperance have been in thoughtless abandonment to a dangerous pastime, in selfish indulgence in a vicious habit, or in criminal dalliance with an unlawful pleasure, as he crouches at my feet, and, with palpitating heart and quivering tongue, implores me to save him from himself, if I could turn coldly away, and bid him go die, and make a speedy ending on't, I could but look upon myself as—

"A stony adversary, an inhuman wretch,
Uncapable of pity, void and empty
From any dram of mercy.

"It may be in strict accordance with the stern decrees of justice, though I doubt it, to leave the unhappy victim to his fate. But is it right? Let us treat the despairing captives as we ourselves have been treated; let us deal with them as we have been dealt by; let us temper our justice with that compassion to which we owe so much; let us be just, but let us, too, be merciful.

"How would you be
If He, which is the top of Judgment, should
But judge you as you are? Oh, think of that,
And mercy then will breathe within your lips,
Like man new made."

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[a] British Medical Journal. 1897. Vol. II. P. 496.

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ART. XVII.—*On Tuberculosis of the Bladder.*[a] By T. E. GORDON, M.B., F.R.C.S.I.; Surgeon to the Adelaide Hospital.

PREFACE.

CYSTITIS has been divided by a recent authority into three classes:—1. Catarrhal or non-suppurative. 2. Suppurative with alkaline urine. 3. Suppurative with acid urine.

I do not consider this classification, in all respects, a safe one, for it is based on views held by the author of it in opposition to the teaching of other and equally competent observers. My reason for alluding to it now is because it brings into prominence the important fact that chronic cystitis may occur associated with acid urine.

One amongst other objections urged against the classification is that the third group embraces many forms of cystitis of entirely different origin and clinical characters. This objection draws attention to the additional fact that cystitis with acid urine is probably of frequent occurrence, seeing that it may be due to so many causes. These things being so, I think it possibly worth while to point out how erroneous and dangerous is the often-repeated statement that pus in acid urine indicates disease of a part of the urinary tract above the bladder.

It is not, however, with the general subject of suppurative cystitis with acid urine that I have to deal at present, but with one special and important form of it—that due to tubercular infection.

Tuberculosis of the urinary bladder is almost constantly a secondary affection. The primary seat of disease is usually in the globus major of the epididymus or in the kidney, less commonly in the prostate or some other part of the genito-urinary apparatus. That the ulceration should occur either in the area of the trigone or about the openings of the uterus is in accordance with these facts. The bladder would appear to possess considerable power of resistance to tubercular invasion, as is sufficiently shown in the often long period of immunity it enjoys in cases of tubercular kidney. Every now and then, however, one does meet with cases in which the bladder appears to be the sole part affected. It is difficult to be certain that the primary focus in these cases is in the wall of the bladder, for a small tubercular lesion might well exist in the prostate, for instance, which could scarcely be detected by rectal examination. With an acknowledgment of this possibility I wish to place before you the history of a case which I believe to be one of primary tuberculosis of the bladder:—

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[a] **Read before the Dublin Biological Club on March 21st, 1899.**

Case.—The patient is a young man about twenty-two years of age, with a good family history. He was sent to the hospital in November, 1896, supposed to have a stone in his bladder. This is the history he gave me of his illness:—Eighteen months previously he passed a considerable quantity of blood in his urine, and two or three months later he had a second attack of bleeding, this time associated with pain. The bleeding passed off in a day or two, but the pain persisted. A recurrence of the hæmorrhage was the principal cause which brought him under my observation. His leading symptoms were—1. Frequency, every hour and a half, not distinctly more by day than night. 2. Pain, felt chiefly after micturition, and referred to the end of the penis, but also felt before passing water. The pain was not very decidedly affected by exercise; he had, however, given up bicycling, as he thought it made the pain worse. 3. The blood was sometimes diffused through the urine, at other times was passed at the end of micturition. Like the pain, the quantity of blood was not unmistakably influenced by exercise. 4. He had occasional stoppage of the stream of urine due, I imagined, to spasm caused by the pain.

The only facts of interest I have record of in connection with the urine are as follows:—It was acid, contained a sediment of pus; was at times almost like pure blood, at others clear and pale in colour. Tubercle bacilli were searched for in vain. He had no symptoms which pointed towards disease of the kidneys—there was, for example, no lumbar tumour, and no pain or tenderness in the kidney region. The sickly, anæmic look of the boy, and the fact that he had a slight evening fever, suggested tuberculosis to one's mind as the cause of his bladder symptoms. The epididymus was carefully examined, as also, as far as could be, the prostate per rectum, in each case with a negative result.

The diagnosis of calculus seemed to me very improbable. There was one feature of his case which I thought almost sufficient alone to exclude stone—*i.e.*, that pain and blood were not decidedly influenced by exercise.

Again, as far as I know, the mere presence of a calculus is not sufficient cause for purulent cystitis. In this case no instrument had been passed, nor indeed had he any other apparent cause for cystitis—in particular, no history of gonorrhœa. Another point to which I may draw attention is that his first symptom—eighteen months before admission—was hæmorrhage, not pain; his first attack of pain was some months later. Bearing in mind the fact that the age of the patient was that at which a stone is least likely to form, I think the facts I have mentioned sufficiently justified me in setting on one side the diagnosis of calculus. Subsequent events proved the conclusion correct, whether the premises were so or not. At the same time, it is worth noticing how this tubercular disease did, in a general way, mimic a case of vesical stone.

I kept the patient in bed for a considerable time, and although he had some set-backs his course was one of gradual improvment—less frequency, less bleeding, &c. He came under my care again in January, 1898. This time his trouble was a typical tuberculosis of the left epididymus. I castrated him, and when the wound was healed he left hospital, and I have seen him from time to time since as an out-patient. He feels quite well, has hardly ever any pain, has not passed any blood for six months, and has unbroken sleep at night. His urine is acid, of normal colour, and contains only a very small quantity of pus; tubercle bacilli again searched for with negative result. I do not by any means regard this case as one of cured tuberculosis of the bladder, far from it, but from the standpoint of treatment it is, I imagine, of no little importance to note that the patient, now more than two years the subject of tubercular bladder, should be capable of enjoying life, and that his symptoms should now be much less pronounced than was the case two years ago.

The treatment of this condition is a matter of considerable interest, for the state of those patients who suffer from the later effects of the disease is indeed deplorable.

The surgeon naturally thinks of the knife as a means of treating the disease, and he is encouraged to operate by his knowledge of the success with which he can deal with the same disease in other regions. At the outset of this discussion, we must bear in mind certain facts which are thoroughly established in connection with the general surgical treatment of tuberculosis:—1st. A very thorough removal of all the disease is to be attempted. It has been shown that incomplete operations are those specially likely to be followed by general tuberculosis. 2nd. Where an operation, from the nature of things peculiar to the case, cannot be complete, partial measures sometimes do succeed in establishing a cure. A striking example of this is seen in psoas abscess, where the abscess cavity is treated, and the primary trouble in the bone commonly left to take care of itself. Again, I venture to think that most cases of excision of the hip are incomplete, and yet many of these, as well as the cases just referred to, do exceedingly well. Success in either class of operation—*i.e.*, complete or incomplete—is dependent largely on the maintenance of asepsis, much more especially, however, in the second than the first. It is very well known that an infection with pus-producing organisms frequently converts a slowly advancing tuberculosis into one which is most rapid. Now, applying these facts to the case of bladder tuberculosis, it will be at once apparent that operation here must belong to the less safe and much more uncertain class—the incomplete. True, certain operators have performed complete resections of tubercular disease, but clearly this is only possible in the very early stages. I venture to express unqualified disapproval of such operations; they must be attended with great risk, their completeness must remain very uncertain, and other and non-operative treatment is quite as likely to be successful if the case is seen at this early period. The operative treatment which is likely to meet with more general approval is essentially incomplete. I refer to supra-pubic incision and curettage of the ulcerated area. This operaation has occasionally proved successful—Mr. Battle's successful case, for instance, is well known; but the opinion of most operators who have given the method a trial is distinctly unfavourable. This is, indeed, to be expected, if we bear in mind and allow the importance of the facts I have already referred to. The operation is but a partial removal of tubercular tissue, and its performance carries with it almost inevitably the introduction of septic organisms. The operation belongs therefore to the least satisfactory class for the treatment of tuberculosis, and is performed under the most unfavourable conditions—*i.e.*, sepsis. Taking all these facts into consideration the surgeon is compelled to abandon operation as a means of curing a tubercular bladder. I do not now refer to operation as a means of relieving suffering only; here it has a place, and its usefulness none will probably question.

Seeing how little surgery can do for these cases one is not surprised to find a host of drugs, to be used in one way or another, held up as a curative. It would be as wearying as unprofitable to enter at any length into this question. and indeed my knowledge is too limited to enable me to do so safely. I used guaiacol in the case whose history I have laid before you, at my friend Dr. Peacocke's suggestion. The boy did well while he was taking it, but on a subsequent occasion, during a relapse of his symptoms, I thought he did equally well without it. Iodoform and many other substances have been and are recommended as injections into the bladder, but recent knowledge of the bacteriology of the lower urinary apparatus furnishes, as it seems to me, an insuperable objection to all injections. The urethra normally contains pus-producing organisms, and therefore any instrumentation carries with it a risk of setting up purulent cystitis. Even a normal bladder may be thus infected, how much more the bladder affected with tubercular ulcerations.

I attribute the certain measure of success which has attended my treatment of this case, not to what I have done for his bladder, but rather to that which I have abstained from doing. Briefly let me state what, in my judgment, is the best treatment—1. Avoid sounds, cystoscopes, and other instruments. I maintain that a diagnosis can be made without these. If not, I would inoculate a guinea-pig rather than resort to their use. 2. Treat the patient with a view to improving his general vitality—suitable climate, good food, and the like; let him rest if he has hæmorrhage, and take rational open-air exercise if he has not.

Before concluding I wish to draw attention to another aspect of the subject. We have seen that tuberculosis of the bladder is often secondary to that disease occurring primarily in the epididymus, and what I have now to say has reference to the treatment of such primary foci, which, if successful, will prevent the occurrence of the secondary and often incurable affection.

In the general surgical treatment of tuberculosis there exists an increasing tendency towards conservatism. Excision of joints has for many years replaced amputation, and excision is now becoming more and more generally supplanted by arthrectomy. This same conservative tendency is making itself felt in the treatment of surgical tuberculosis of the genito-urinary apparatus. Localised tubercular foci in the kidney have been treated successfully by excision instead of by nephrectomy, and working on the same principle tubercular testes have been saved by early extirpation of diseased tissue only.

In this last instance, I am of opinion, conservatism has been carried too far. If castration had a mortality as high as nephrectomy the case would be different. It is the great danger of nephrectomy that justifies the surgeon in performing an operation which the ultimate result may prove to have been wholly inadequate. But castration has practically no mortality, and hence I think that it is the only legitmate treatment for testicular tuberculosis. One further point and I have done. Probably most surgeons have from time to time performed castration for this condition, and have found to their dismay that the vas is tubercular beyond the deep inguinal opening. I have had this experience, and I have asked myself what I now ask you—Would it be justifiable in all such cases (provided, of course, there are no vesical symptoms) to enlarge the incision to any extent requisite, follow the vas to the base of the bladder by stripping off peritoneum, and excise it as well as the vesiculæ seminales, if this should be found practicable? It seems to me that an operation even more extensive than this would be legitimate, if by any means one could prevent the occurrence of tuberculosis of the bladder.

The points which I have endeavoured to emphasise in this communication are these:—

1. Tuberculosis of the bladder may in its symptoms closely simulate vesical calculus.
2. A diagnosis can and should be made without resort to instruments.
3. In treatment general measures are more likely to succeed than local.
4. In testicular tuberculosis, owing to the dangers which attend failure, the only treatment admissible is castration.
5. If, in addition to the testicle, the vas, seminal vesicles, and prostate are involved, but not the bladder as yet, I am of opinion that extensive operation is legitimate.

ART. XVIII.—*Enteric Fever fatal through Embolic Hemiplegia.*[a]

By J. W. MOORE, M.D., Dubl.; P.R.C.P.I.; Senior Physician to the Meath Hospital; Professor of Practice of Medicine, Royal College of Surgeons in Ireland.

ACCORDING to Murchison, paralysis is an occasional sequel of enteric fever. It may not supervene till many weeks after the commencement of convalescence, and it is usually temporary, recovery taking place within a few weeks or months.

A full account of the nervous lesions in this fever will

[a] Read before the Pathological Section of the Royal Academy of Medicine in Ireland, on Friday, March 24, 1899.

be found in a monograph by H. Nothnagel on "Die nervösen Nachkrankheiten des Abdominal-typhus," published in the *Deutsches Archiv für klinisches Medicin*, 1872 (Vol. IX., page 480). He states that paraplegia is the most common form of paralysis after enteric fever, but it may also take the form of hemiplegia. Dr. Charles West, in his "Lectures on Diseases of Infancy and Childhood" (6th edition, 1874, page 776), mentions the case of a child who had convulsions followed by hemiplegia, and recovered. Several cases of temporary aphasia after enteric fever in children have been recorded by Weisse and Friedrich (*Gazette hebdomadaire*, 1865, No. 140, page 591).

In the third edition of Murchison's classical work on the Continued Fevers, the editor, Dr. W. Cayley, observes that sudden hemiplegia, probably due to embolism, sometimes occurs during enteric fever. Dr. Cayley recalls the fact that he reported, in the *Medical Times and Gazette* for March 23, 1878, a case of right hemiplegia and aphasia as a sequel of this fever. The patient was a boy, aged eleven years, who was admitted into the North-Eastern Hospital for Children, London, on December 4, 1877, when he had been ill about a week. He subsequently passed through a severe attack of enteric fever complicated with peritonitis. After December 22 his temperature became subnormal in the evening. On the evening of the 29th the temperature rose to 102°, and on the following evening to 103·5°. On the 31st the lad complained of a constant pain in the left inguinal region. The thermometer now again fell below normal, recording 96° on January 3, 1878. On the evening of this day he again became feverish, the thermometer rising to 103°. Next morning he was fever-free, but paralysed on the right side, without any lesion of speech. He steadily improved from January 6, but even at the end of February still dragged the right leg, while the right arm and hand also showed considerable loss of power.

In the same number of the *Medical Times and Gazette*, Dr. Garlick, Registrar of the Hospital for Sick Children, Great Ormond-street, London, reported the case of a boy, aged seven years and eight months, who was admitted under the care of Dr. Gee, July 9, 1877. Seven weeks before admission this child fell ill of enteric fever, the attack lasting five weeks. He was recovering when, two weeks before admission, he was seized with a fit and foamed at the mouth. Next morning the boy was found to have lost the power of speech and to be unable to use the right side of his body. The aphasia proved to be of the ataxic rather than the amnesic form. There was well-marked early rigidity of the right arm. The boy recovered slowly, but at the end of September was still aphasic to a certain extent. Dr. Garlick assumes that a patch of embolic softening had taken place in Broca's region from plugging of a branch or branches of the left middle cerebral artery, the plug being derived from some broken-up fibrin in the left auricle. William Osler (*The Principles and Practice of Medicine*, 3rd edition, 1898, page 38) states that hemiplegia is a rare complication of enteric fever. Francis Hawkins has collected 17 cases from the literature; aphasia was present in 12. The lesion is usually thrombosis of the arteries, less often a meningo-encephalitis. The aphasia in children often disappears.

The case which I submit in this communication is that of a married woman, aged twenty-nine, who progressed favourably until the 27th day of her fever, when the temperature began to rise again, pain set in on the left side of her chest accompanied by a choking sensation and "Lufthunger," great exhaustion and profuse sweating. This attack was evidently due to the occurrence of embolism in the spleen. On the 39th day of the fever there was a very severe rigor, and the thermometer quickly ran up to 105·6°. These grave symptoms were speedily followed by complete right hemiplegia and aphasia, death ensuing on the 53rd day.

For the notes of the case I am indebted to the Staff-Sister in charge of the epidemic wing of the Meath Hospital—"Sister Helen" (Miss Campbell).

Case.—Mrs. M. B. entered the Meath Hospital as a patient on the 8th of November, 1898. She said she had been quite herself till about the 1st of November, after which she felt out of sorts; had no appetite; complained of pains in her back and legs; epistaxis; violent frontal headache. Not improving, she thought she would

seek advice, and came over to the Meath, where Dr. J. W. Moore saw her, and sent her into the West Wing.

November 8th.—On examination she was found to be suffering from enteric fever. The diagnosis was verified by Widal's test. Temperature not very high. Patient did not appear to be very bad.

November 9th.—Temperature rising; very profuse diarrhœa.

November 11th.—Several rose spots appeared on abdomen. Without any warning or drop of temperature profuse intestinal hæmorrhage came on. This continued for three days. Great resulting prostration; tongue very dry and brown.

November 15th.—Temperature fairly steady, but pulse weak; hæmorrhage quite stopped; diarrhœa much less. Patient complained of shooting pains in legs from thighs down, and sometimes going up to abdomen; very weak, so that she could not turn in bed.

November 20th.—Temperature coming down nicely; pulse a little stronger; constipation.

November 28th.—Temperature rising again; pulse much weaker and quicker. Patient complained of a pain in left side of chest and a choking sensation, as if she could not breathe freely. Pains in her legs quite gone; great exhaustion; profuse perspiration.

December 4th.—Temperature keeping up; slight rigor during night; all symptoms exaggerated; slight delirium; pulse very weak and dicrotic.

December 9th.—Patient much worse; hardly conscious, but taking all nourishment, medicine, stimulants.

December 10th.—Very severe rigor; temperature reached 105·6°; pulse could hardly be felt; quite unconscious.

December 11th.—Temperature down; right side of body completely paralysed; could not move right leg or arm; the right side of face was very drawn. Patient could not speak; she was quite conscious; looked very distressed; could take only teaspoonfuls of nourishment.

December 12th.—Collapse; Dr. Moore observed that there was very marked reduplication of first sound of the heart; pulse can hardly be felt; very rapid and shallow breathing; still able to take a little nourishment, and quite conscious.

December 13th.—Patient sinking fast.

December 14th.—Patient died quietly at 7 30 a.m.

The following is a report on the pathological conditions found *post-mortem* by Mr. C. B. Pasley, Clinical Clerk:—

1. *The Cerebrum.*—The centrum ovale majus and minus having been exposed, it was observed that the white matter of these parts on the left side was softened and congested. On making sections through the lower portions of the brain the central grey nuclei and the surrounding white matter were seen to be softened and congested. It was further found that embolism of the left middle cerebral artery had occurred.

2. *The Heart.*—This organ was pale in colour, and soft in consistence. Ante-mortem clots were found in the left ventricle and left auricle.

3. *The Spleen.*—An enormous hæmorrhagic infarct was found to have occurred—indeed it was almost as large as half the size of a normal organ. It occupied the central portion of the viscus.

4. *The Intestines.*—On examining the ileum, evidences of past ulceration of Peyer's patches were seen in the lower two or three feet of this portion of the intestine. The ulceration had been for the most part shallow and confined to small areas. One or two large and deeper ulcers were, however, found near the ileo-cæcal valve. In nearly all cases the sloughs had separated.

There can be little doubt that the chain of incidents which led to the final catastrophe in this case was—(1) Typhoid softening of the myocardium; (2) consequent clotting in the left chambers of the heart; (3) embolism of the splenic artery; and finally (4) embolism of the left middle cerebral artery. The exact time at which the successive embolic attacks occurred is marked by the rigors and sudden ensuing rises of temperature. The splenic infarction clearly coincided with the left-side pain and choking sensation felt by the patient on November 28. The cerebral infarction took place on December 10, nearly a fortnight later, when there was a very severe rigor and a bound of temperature to 105·6°.

Dr. William W. Keen, in his recently published work on the "Surgical Complications and Sequels of Typhoid Fever,"[a] states that it is not uncommon to find ante-mortem clots in the cavities of the heart. He quotes Forgues, Beaumanoir, Fritz and Valette as having all recorded autopsies with such findings. According to Keen these clots are formed probably during the period of cardiac weakness, especially in the second and third weeks of the

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[a] London: The Rebman Publishing Co. 1898. Page 59.

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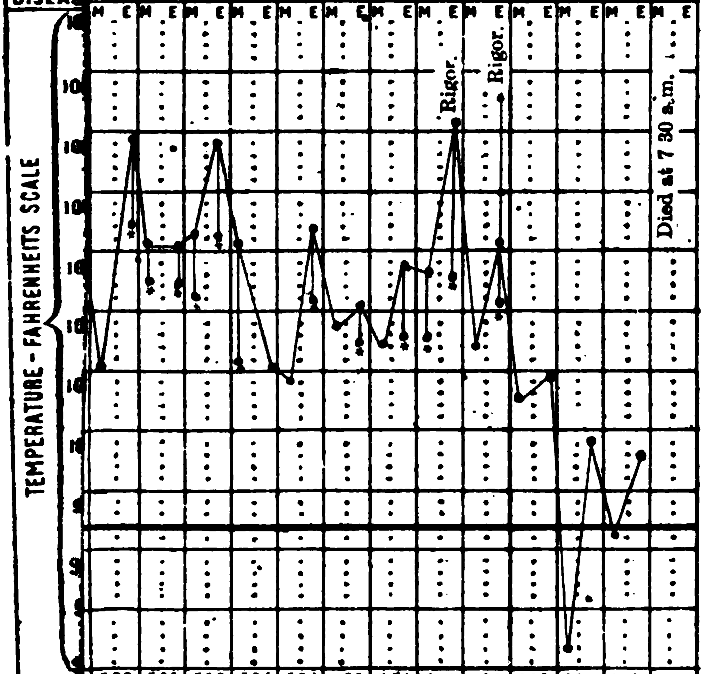

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fever, and, as the heart begins to regain its force and lose its frequency, are washed into the circulation as emboli. In the viscera their presence is shown by multiple infarcts; in the legs by the occurrence of gangrene.

At least two investigators—Rattone and Haushalter—have found Eberth's *Bacillus typhosus* in thrombi. The latter observer thinks that in all probability the ferment necessary to produce coagulation of the blood is to be found in the products of the bacilli. Keen points out[a] that the bacilli of enteric fever are not commonly discovered in the blood. When present, they are most numerous during the first twelve days of the disease. It is probable that they reach the blood by the lymphatics, since they are, according to Déhu,[b] found in abundance in the thoracic duct. That the bacilli must exist in the blood and be diffused by it is proved by their detection in the placenta and fœtus in cases of abortion in enteric fever. Widal, Chantemesse, Eberth himself, Etienne and Giglio, amongst many others, are responsible for this statement.

In the light of the foregoing, it is interesting to note that in my patient the first embolic attack occurred on the 27th day, after the pulse had been for three consecutive days as slow as 80 per minute.

As regards the intimate nature of the change in the myocardium so often observed in enteric fever, Arthur E. Sansom inclines to the opinion that it results from a true myocarditis. It is, however, open to question whether there is any inflammation in the strict sense of the term. Zenker's so-called hyaline degeneration of the muscular fibres is most commonly present. Less frequently there is the granular degeneration of the fibres to which the name "cloudy swelling" has been given. From both these forms of degeneration the heart muscle may entirely recover. Hence it is that after neither typhus nor enteric fever is there any permanent heart-disease—a fact long since insisted upon by William Stokes.

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[a] Loc. cit. Page 23.

[b] Thèse de Paris. 1893. Page 59.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Degeneracy: its Causes, Signs, and Results. By EUGENE S. TALBOT, M.D., D.D.S. London: Walter Scott. Small 8vo. 1898.

THIS work is one of the Contemporary Science Series, and has been done by the author of the well-known treatise on the ætiology of the osseous deformities of the head, jaws, and teeth—Dr. Talbot, of Chicago. The author's original researches would seem to have been chiefly in connection with his own special subjects—dentistry and the allied sciences; but in the work before us he has gone over the whole ground of "degeneration," in the modern use of the term; and has presented us with probably the best and most comprehensive outline of this subject which we have in English. We cannot but express admiration for Dr. Talbot's industry, for his acumen in sifting facts and observations, and for the general moderation of his views.

If Dr. Talbot is to be blamed for the indefiniteness of many of his statements, for his tantalising evasion of definition, and for his quiet assumption that deductions from certain recent speculations in physiology, embryology and teratology are foundations that cannot be shaken, why the reproach for these errors seems to us to be common to all thinkers on degeneracy. Degeneration is one of those charming generalisations which can be now contracted to meanings the most concrete, now expanded into meanings the most abstract. It affords infinite fields for conjecture; it gives the most unlimited opportunities for "testifying" (in Cuddie's sense of the word), but as a scientific verity it has yet to establish its very existence, or so it seems to us.

There is much, therefore, in the work before us which we would dispute, but, unless we are to imitate Hirsch or

Nordau, and write a book nearly as big as Dr. Talbot's, we must content ourselves with a general protest. In many details we agree with the author. Thus we think a good deal of harm is done to the sacred cause of temperance by hysterical advocates who suffer from "blatant alcoholophobia." We think with him that harm is often done in the sexual field by "sexual 'purists,' or persons whose ostentatious religiosity covers a sexual perversity." His descriptions of deformities, as we would like to term them, of the teeth and jaws are excellent. His admission that "atavism" is sometimes a saving force surely is of value. Why it should be supposed that we only inherit bad qualities from our ancestors has always been as incomprehensible to us as was the similar notion that we commonly inherit direct from our progenitors of the days when the human stock branched off from the lemurs or even from the ascidians, leaving all our poor human ancestors (may be a few millions of generations more or less) quite without influence, and serving merely as conduits for conveying along bestial survivals. But at this rate we shall be discussing the meaning of degeneration presently, and that is contrary to the rules of the game.

An interesting *brochure* might be written, we take it, on degeneration in medical grammar and construction. We can offer some samples. What shall we say of this sentence?—"Stimulation, together with stenosis (narrowing), tend to produce a closure. Still further, irritation and an unstable mucous membrane results, with polypi or adenoid vegetation following." "Arrests of development of the promise of the child type" recall the entanglement of "thats" which used to amuse our schoolboy days. And what is the *development* of a promise? Surely a promise is fulfilled or kept or carried out. Development means something else. This is not a mere quibble, because the quotation shows how a popular word is incorrectly used and its connotations entirely overlooked. To return to our humbler purpose of playing elementary schoolmaster, we do not like the phrase repeated several times of "painful menses" instead of the occasionally used "painful menstruation." We learn that the first of certain conditions "may occur precedent to puberty;" and again we hear that "precedent to 1835" certain states of thought existed, but that "subsequent thereto" a reaction took place. Now what have poor little "before" and "after" done that they are to be heaved out to make room for these cumbrous and uncomfortable substitutes? But if long words and complicated forms are needed for scientific exactitude, why is the opposite error committed when *approximate* is used as an active verb and without a preposition?

Some of Dr. Talbot's sentences are so long and straggling that it is difficult to understand them, at least at a first reading. He seems to have cultivated also a peculiar elliptical mode of expression, which is a severe test of the learning or intelligence of his readers. Thus he says—"Figure 45 shows the ear which Hawthorne gives Donatello in the *Marble Faun*; it has been called the Satanic ear because of the pointed extremities and its narrowness." We cannot just now remember any passage in the Holy Scripture or in the Talmud in which it is distinctly laid down that Satan's ear is distinguished by the pointed extremities or its narrowness. Again, "the ears of degenerates frequently grow in later life to an enormous size. On examination of 207 paupers over 50 years old"—certain measurements were obtained—"these results . . . plainly demonstrate that the ears of degenerates grow after the twenty-sixth year." But this only holds good if a pauper over 50 is necessarily a degenerate; and this may be so in America (where they say there is work for all), but we have not been told so.

We are glad to note that two English poets—Dryden and Johnson—remarkable each in his own manner for common sense, are quoted, but we are sorry to find both are quoted incorrectly, and in a way to suggest that our author's sense of metre is degenerated—

> "Great wit to madness nearly is allied"

is not even a presentable imitation of the well-known

> "Great wit to madness sure is near allied."

More fundamental is the objection to the following passage, which is said to illustrate "the obliteration of the function of limited areas of the brain":—"A young lady . . . was engaged to be married. One evening her *fiancé* called; she failed to recognise him, and he remained ever after a stranger to her. In every other respect her mind was seemingly normal. . . . In another case a young lady, an expert stenographer, while riding her wheel, fell striking her head against a stone. . . . After her recovery she was much surprised to find that she knew nothing about her former employment, although her brain was perfectly normal in other respects." Now these cases either show exactly the opposite of what they are quoted to prove, or else we are asked to believe that young ladies' brains contain a *fiancé* centre, and also a stenographic centre. It is probable that the worst nonsense of Gall and Spurzheim did not surpass that notion, and we cannot believe that Dr. Talbot seriously entertains such a view.

Annales des Maladies des Organes Génito-Urinaires. 1897–1898. Paris: 22 Place Saint Georges.

We have found much of interest in the pages of these Annals, but, perhaps, nothing more interesting than M. Rovsing's papers on urinary infection, and the criticism of these by other writers. The subject is one which has probably attracted the attention of many in these countries since M. Rovsing's important communication at the Edinburgh meeting of the British Medical Association. Assuming, then, that our readers are familiar with Rovsing's teaching, we have thought that a translation of a paper by prominent opponents of this teaching in the French School would, not improbably, prove interesting.

MM. Albarran et Hallé write as follows:—"To appreciate the significance and interest of this work (of Rovsing) it is well that we should bear clearly in mind the particular position taken up and maintained by M. Rovsing since 1889 concerning urinary infection." After the work of Albarran and Hallé—"Note on a pyogenic bacterium and its part in urinary infection" (August, 1888), a number of other authors, in France and abroad—Morelle, Krogius, Reblaub, Denys, Barlow, Melchin, &c.—confirmed the fact of the frequency of the *B. coli* in acid-purulent urines, and the importance of its share in the production of the suppurative affections of the urinary apparatus. M. Rovsing, on the other hand, has arrived at an entirely different conclusion. He gives the results obtained from a bacteriological examination of twenty-nine cases of cystitis, in a work published in Danish in 1889, and in German in 1890: "Die Blasenentzundungen." In these twenty-nine cases, except five cases of tuberculosis, in which the urine was acid and contained Koch's bacillus, the urine was ammoniacal, and contained the micrococci of urea fermentation only. Not once in the twenty-five cases was a bacterium discovered in the urine.

The present paper is a *résumé* of these researches on septic infection of the urinary passages, which he has followed up since that time.

In this work we can readily distinguish several parts:—The exposition of facts; the interpretation of these by the author; the criticism of the work of others.

The facts, taken by themselves, are numerous and interesting—126 clinical observations and 28 experiments on animals, briefly epitomized. Many pages are devoted to the interpretation of the facts. In an argument, made up of theory, the author makes all his facts agree with his own previously formed views regarding the pathology of urinary infection. Finally, the criticism, much drawn out and everywhere mixed up with the interpretation of facts, tends to show that all other observers have been deceived in attributing to the *B. coli* an active and often exerted pathogenic power in septic urinary diseases. This criticism has often the style of a personal polemic, into which we do not propose to enter.

Let us then limit ourselves to an examination of the facts and the conclusions which follow directly from them. Rovsing's 126 cases are classified in the following way:—22 cases of bacteriuria, of which 10 were pure and 12 had pus corpuscles in the urine. The *B. coli*, as a pure cultivation, was the only organism met with in these 22 cases. 21 cases of pyelitis without cystitis, in 19 of which the *B. coli* occurred pure, in 2 associated with micrococci. 11 cases of pyelitis complicated with cystitis and ammoniacal urine—in this class the *B. coli* was only observed once, associated with other micro-organisms; in 3 cases other varieties of bacteria were found—bacillus liquefaciens, proteus, bacillus longus. 3 cases of pyelitis complicated with cystitis and acid urine, of which 2 were tubercular, 1 the bacillus of Eberth. 6 cases of catarrhal cystitis, all due to micrococci. 13 cases of ammoniacal suppurative cystitis, in which the *B. coli* was associated with urea-decomposing organisms. 37 cases of ammoniacal suppurative cystitis without the *B. coli*. 13 cases of acid suppurative cystitis—3 tubercular, 3 due to gonococci, 1 to gonococci and *B. coli*, 3 to micrococci, 3 to an immobile form of *B. coli*. Putting on one side the 5 cases of urinary tuberculosis, which are beside the question, we find that out of 121 cases of septic urinary affections, the *B. coli* was found sixty times in the morbid urine; other forms of bacilli were found twelve times. This gives for bacteria in general 72 cases out of 121—namely, more than half.

From this simple observation of statistics, taken in conjunction with the results of M. Rovsing's first series of observations, we learn the following fact: the *B. coli* and the other varieties of bacteria, which were entirely absent in the abnormal urines examined by M. Rovsing in 1889, appear, and that in considerable numbers, in these which he has observed since. This is an important point, upon which the author has not thrown sufficient light.

Let us see next what *rôle* M. Rovsing attributes to the *B. coli* in the cases in which he has found it. The *B. coli* produces pure bacteriuria without inflammation of the urinary mucous membrane; and, if he finds it in cases of bacteriuria in which the urine contains a small number of leucocytes, it is not necessary to assign the onset of suppuration to its presence. The *B. coli* can produce pyelitis and cause suppuration in the renal pelvis. In pyelitis, complicated by cystitis, it is no longer a cause. It is unable to cause slight catarrhal cystitis. If we find it associated with other microbes in a quarter of the cases of ammoniacal suppurative cystitis, it is an accessory organism, superadded, without real pathogenic action. In some few cases it can cause suppurative cystitis. It seems almost devoid of pathogenic power on the renal tissue.

Here is M. Rovsing's *résumé* of his view concerning the part taken by the *B. coli* in septic urinary disease:—"The *B. coli* is the organism which we encounter most frequently in the urinary tract. In the most common cases, bacteriurias, it is an exceedingly harmless affection. In a considerable number of cases it provokes a slight suppurative pyelitis. In some cases it can provoke cystitis and nephritis."

These conclusions, notably different from those which the author published in 1889, are sufficient for us. The frequency of *B. coli* in morbid urine is admitted. Its pathogenic power, however restricted, is recognised. Finally, between M. Rovsing and the other authors who have studied urinary infection, there is no longer a conflict concerning the parts played by the *B. coli*, but rather a difference of opinion touching the degree of pathogenic power of this organism and its frequency.

It seems to us, then, useless to follow the author through the intricacies of his argument, or the subtleties of his criticism. It is easy to see to what end argument and criticism lead.

Obliged to recognise the frequency of the *B. coli* in infected urines—a fact which he had previously overlooked—M. Rovsing endeavours to, at least, diminish the importance of the pathogenic function of this organism. He employs, to attain this result, curious artifices of wording and classification. He must, at all costs, maintain the group of catarrhal cystitis, which he has created on theoretical grounds of his own, for the urea decomposing organisms, to the exclusion of the *B. coli*. He has put into this class cases published under other names, by other authors, and these, be it noted, he has been unable to verify by cystoscopic examination. To exclude *B. coli*, he classifies amongst bacteriurias all the cases in which the urine contains the *B. coli* with a small number of leucocytes. Thus he arrives at this remarkable result: When the urine is alkaline and contains cocci with a small amount of pus, it is catarrhal cystitis; when the urine is acid and contains *B. coli* with a small amount of pus, it is bacteriuria. Working on the same principle, M. Rovsing finds it necessary to bring together in the group of acid suppurative cystitis—tuberculosis of the bladder, cystitis due to gonococci, *B. coli* cystitis—differing in respect of cause, pathology, course, and prognosis.

We venture to think that a principle of classification which brings together cases so dissimilar, and separates others which are alike, is at least open to criticism. We feel, moreover, in all this, an effort on the part of M. Rovsing to remain true to his previous nomenclature, and that at all costs.

Placed between his early conclusions, based upon insufficient observation and newly discovered facts, M. Rovsing finds himself in difficulties. He can escape only by torturing facts and abusing his opponents—in the latter, at all events, we must confess, he has succeeded perfectly. He seems to us to have been less fortunate in the various discoveries which he claims as his own, in the course of his research—the action of nitrate of silver; the parts taken by retention in the pathology of febrile complications; the vesical symptoms in calculous pyelitis, &c. But all this is of no great consequence. In recognising the frequent occurrence of the *B. coli* in morbid urine and its pathogenic *rôle*, M. Rovsing has accomplished the first step, which is the hardest.

Extensive bacteriological research has established, beyond all dispute, the considerable variations in virulence which the *B. coli* may present—at one time a harmless saprophyte, at another possessing a virulence equal to that of any pathogenic organism. This fact in general pathology dominates the pathology of urinary infection by the *B. coli*.

It is probable that more prolonged observation, guided by this principle, freed from all pre-conceived theory, and all spirit of controversy, would enable M. Rovsing to arrive at more perfect results. If he makes clinical and experimental observations on these conditions, he will, without doubt, meet with all forms of *B. coli* cystitis, from the slightest to the most grave. If, in man, he studies, with all those precautions now deemed necessary, urinary abscesses and the miliary abscesses of suppurative cystitis, which till now he has neglected, he will succeed in convincing himself of the pyogenic powers of the coli-bacillus. More numerous and prolonged experiments on animals will convince him further of the pathogenic action of this organism on the tissues of the kidney.

If he observes the often serious febrile complications which complicate urinary infection by the *B. coli*, as a result of surgical traumatism—urethrototomy, for example—he will be led to admit the septic properties of the *B. coli*. Then that microbe will appear to him endowed with all the pathogenic properties which so many writers have recognised in it when it infects the urinary system.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second Series. Vol. III. C—CZYGAN. Washington: Government Printing Office. 1898. Large 8vo. Pp. 19 + 1100.

THE third volume of the second series of this monumental work includes 11,112 author-titles, representing 4,873 volumes and 10,690 pamphlets. It also contains 10,636 subject-titles of separate books and pamphlets, and 34,314 titles of articles in periodicals. There are also catalogued 677 medical portraits, under the heading "Collection of Portraits."

The Library now contains 127,938 bound volumes and 216,839 pamphlets—in other words, it must now be one of the largest, if not the very largest, medical Library in the world. As a book of reference the Index-Catalogue of this vast Library is unrivalled.

Prize Essays on Leprosy. London: The New Sydenham Society. 1897.

THIS work contains two essays; the larger of these is by Dr. J. Ashburton Thompson, Examiner in Public Health in Sydney University. Its subject is the History of Leprosy in Australia. Dr. Thompson has done his work with extreme care; he has studied and included in an appendix to his essay accounts of a large number of cases that have occurred in Australia. He looks on the disease as probably not communicable directly from a patient to a healthy individual. His words are sometimes peculiar; why, in the name of the English language, does he speak of "primæval autochthons" instead of "savage natives"?

The other essay is by Dr. James Cantlie, of Hong Kong, on the Conditions under which Leprosy occurs in China and the Far East. It consists of reports received from a number of doctors practising in various countries, in answer to a list of questions addressed to them by the National Leprosy Fund, and contains also Dr. Cantlie's remarks thereon.

These essays contain a great deal of information relating to the disease, and deserve to be studied by all who are interested in the subject.

On the Origin and Progress of Renal Surgery, being the Hunterian Lectures for 1898. By HENRY MORRIS, M.A., M.B. Lond.; F.R.C.S.; Senior Surgeon to Middlesex Hospital, &c. London: Cassell & Co. 1898. Pp. 288.

WE have read with much interest this important addition to the literature of genito-urinary surgery. Mr. Morris has given us a clear account of the most recent procedures in this branch of surgery, and he has devoted special attention to "calculous anuria" and injuries and diseases of the ureters. These two subjects have not, up to the present time, received the amount of careful thought which they deserve; but we may hope that the information to be obtained in Mr. Morris's book will prove a stimulus to further work in this direction.

In the earlier parts of the book we find an account given of the author's views as to the best method of fixing movable kidneys. He is, we are pleased to note, opposed to capsule stripping. He points out that if there is danger of serious fibrosis of the kidney, resulting from the passage of sutures through its parenchyma, there must be very much more danger of this condition if the surface of the organ is extensively bared of its capsule. Mr. Morris appears to be well satisfied with the results obtained by nephropexy.

The chapters devoted to the surgery of the ureter are full of interest. In addition to a description of injuries we find an account given of such conditions as ureteral calculus, with its treatment by incision (ureterotomy); ureteral stricture, with an account of plastic operations for its relief. Amongst the various measures for the relief of these and other diseased states we have read with special interest the descriptions of resection of the ureter (Küster's operation) and operations such as those of Van Hook and Bovée, devised for the re-establishment of the continuity of the duct in case of injury or resection (ureterectomy).

The suject of Lecture II. is Renal Calculus, and it is a lecture which both physicians and surgeons might study with much profit. Amongst the many important conclusions arrived at by the author we may draw special attention to two:—"The theory that a stone in one kidney, whether that kidney is itself painful or not, reflects or transmits pain to the opposite kidney, is quite unproven; it is a dangerous theory, calculated to lead to very erroneous practice; and the surgical principle with regard to exploratory operation should be that *with pain, paroxysmal or continuous, on one side only, the kidney on the painful side should be explored.*"

The other statement is this:—"Nephrectomy for calculous conditions is very rarely called for, and should be done only in most exceptional cases. Nephrotomy for calculous pyonephrosis is the proper operation—at any rate, as a primary operation—because of the frequency of double calculous disease."

Sixteen pages are given up to an account of calculous anuria, and the text is illustrated by several interesting figures, amongst them a drawing of a horse-shoe kidney with a calculus in each ureter. Here is an important statement:—"There is a percentage of recoveries in cases operated upon of 51, as against 20·8 in cases not operated upon." As Mr. Morris remarks, "These figures speak loudly in favour of operation for calculous anuria."

The third lecture concludes with an account of the technique of the operation for exploring the kidney and ureter. Mr. Morris has adopted the oblique incision for exploring the kidney, and if he wishes to trace the ureter "the incision is carried in a curvilinear way toward

Poupart's ligament, and then forward parallel to and an inch above that ligament, as far as the internal abdominal ring, or further."

In this way, he states, a stone can be removed retroperitoneally, whether it be impacted in the abdominal or pelvic portion of the ureter (in the male).

We note two statements of great interest:—"Needling the kidney for diagnostic purposes is most unreliable, and should be abandoned." "Whether or not a calculus be found in the kidney, the ureter should always be catheterised from end to end, to test if its lumen is quite free."

The last lecture deals with injuries of the ureter, and at the end of the book are "Tables of two hundred and sixty-seven cases of renal operations performed by the author up to the first week in March, 1898; together with a table of forty-nine cases of operation for calculous anuria."

We strongly recommend this important work to all operating surgeons and others who may be interested in the progress of renal surgery.

Guy's Hospital Reports. Vol. LIII. London: J. & A. Churchill. 1898. Pp. xliii+306.

As usual Guy's Reports are full of interesting and sound matter. Dr. Pye-Smith contributes suggestive "Notes on Diagnosis," giving the following amongst much good advice—"Never be satisfied until you have made a diagnosis, and when you have, *write it down.*" Drs. Richmond and Salter deal with "Diphtheria Bacillus and its Variants." They conclude that diphtheria is caused by the Klebs-Loeffler bacillus *and its variants.* The bacillus is, however, only one factor in the determination of actual illness, others are seasonal, climatic, &c., and symbiotic microbic association, especially of the streptococcus. Two hundred and ten cases occurring in the Maidstone enteric fever epidemic are described by Dr. Poole, some very interesting portions of charts being appended. Dr. Salter has an important contribution on "The Action of Normal Serum upon the Animal Economy." He finds that normal serum can be deprived of all its noxious qualities, and can then be used for feeding purposes in man, horse serum being the most suitable. Subcutaneous injections were used in many cases, such as a marasmic baby, a child with post-diphtheritic paralysis, and an adult with gastric ulcer, and always acted as food and did not cause albuminuria or any ill effects.

The Thermal Waters of Bath. By GILBERT A. BANNATYNE, M.D., M.R.C.P. Bristol: John Wright & Co. 1899. Pp. 87.

A BIBLIOGRAPHY of works on the waters of Bath would be a lengthy and somewhat monotonous compilation. This newest contribution to the long list, however, improves upon most of its forerunners by having less Prince Bladud and more hydropathy. To those who have patients needing treatment at Bath we can recommend Dr. Bannatyne's little book, as it contains full and clear descriptions of the different methods employed and the indications for their use.

The Penycuik Experiments. By J. C. EWART, M.D., F.R.S. London: Adam & Charles Black. 1899. Pp. xciii+177.

THIS is a reprint of three papers dealing with experiments in crossing Zebras, which appeared in the *Zoologist* and *Veterenarian.* The author has bred nine Zebra hybrids by crossing mares of various sizes with a Zebra stallion, and has three hybrids out of Zebra mares, one having for its sire a donkey, the other two were sired by ponies.

Amongst the fascinating questions dealt with are reversion, prepotency, and telegony. With regard to reversion the author says:—

"The more I contemplate my Zebra hybrids the more convinced I am that they are neither new creations in the strict sense of the term, nor yet intermediate forms, and if they are neither the one nor the other they must be more or less accurate restorations of their comparatively remote ancestors. The heredity problem is sufficiently difficult as it is, but if we are debarred from invoking the assistance of the reversion hypothesis it will become hopelessly incomprehensible."

As to prepotency, the author would not trust to the prepotency of the male making up for deficiencies in the female, and he gives evidence that the internal organs are not specially derived from the female, as some breeders have argued. He believes, other things being equal, in the truth of Mr. Howard's dictum—the parent of the purest descent will have the greatest influence.

With regard to telegony, or "infection," or "saturation," the author says his experiments support the view of experienced Continental mule breeders that telegony, if it occurs at all, occurs but seldom.

The book is sumptuously brought out with forty-one capital process illustrations and a cover appropriately decorated with Zebra stripes.

Diseases of the Breast. By A. MARMADUKE SHEILD, M.B. (Cantab.), F.R.C.S.; Senior Assistant-Surgeon and Lecturer on Practical Surgery to St. George's Hospital, &c., &c. London: Macmillan & Co., Ltd. 1898. 8vo. Pp. 510.

MR. MARMADUKE SHEILD may be congratulated on having produced the best work on this subject in the English language. Thoroughly up to date both in its clinical teaching and pathology, it has been produced by the publishers in a fashion that makes it attractive as well as useful. Every aspect of diseases of the breast is here fully discussed, and illustrated both by verbal descriptions of cases and by excellent chromo-lithographs. To all surgeons we would specially recommend a careful perusal of Chapter X. on the operation of removal of the mamma. This represents fully the most modern teaching on the necessity of *total* and not partial operations. If anyone who reads this, and also Mr. Jacobson's masterly article in *The Operations of Surgery*, will still be satisfied to stick a finger in the axilla and say he feels nothing, and rest content therewith, we fear he is past surgical redemption. Hear Mr. Sheild:—"A common error also in operating in the axilla is to make an insufficient opening in the skin and fascia, and through it to 'burrow' and 'tear' with the finger. The surgeon cannot too strongly be impressed with the truth, that to operate with ease and safety among important vessels and nerves, it is needful to well expose them, and this can here best be done by removal of the sternal part of the pectoral muscle." Most lamentable recurrences have followed from the adoption of this "tearing" and "burrowing" method; and the sooner surgeons recognise the danger and incompleteness of work done in the dark, the better for the patient and for the statistics of mammary cancer. In every other point Mr. Sheild's teaching and practice will be found a reliable guide, and we most cordially recommend the work to all students of medicine and surgery.

Atlas and Epitome of Operative Surgery. By DR. OTTO ZUCKERKANDL, Privat-docent in the University of Vienna. Authorised Translation from the German, edited by J. CHALMERS DA COSTA, M.D.; Clinical Professor of Surgery in Jefferson Medical College, Philadelphia. With 24 Coloured Plates and 217 Illustrations in the Text. London: The Rebman Publishing Co., Ltd. 1898. 8vo. Pp. 395.

THIS translation of Dr. Zuckerkandl's work places within the reach of English readers a work which has no counterpart in our surgical literature. The book contains a large number of admirably-finished coloured plates, which give at the same time a graphic and accurate idea of some of the more important operations in surgery. Affixed to the plates are short descriptions of the anatomy of the part exposed, and a full description of the various steps of the operation; and these, combined with the numerous smaller illustrations in the text, give to the student and junior surgeon a reliable guide at the outset of their career, and a sound basis on which to build a more elaborate operative superstructure. None of the more important surgical procedures has been omitted, though some of those less frequently performed are mentioned with a lack of detail which would seriously hamper a student relying on this text-book alone. Nevertheless we can confidently recommend it as a useful guide for those preparing for the higher examinations in surgery.

A Handbook of Hygiene and Sanitary Science. By GEORGE WILSON, M.A., M.D., LL.D. Edin.; F.R.S. Edin.; D.P.H. Camb.; &c. Eighth Edition. London: J. & A. Churchill. 1898. 8vo. Pp. 798.

TO criticise the eighth edition of a standard work would surely be a work of supererogation.

Nothing demonstrates the progress of Preventive Medicine so clearly as the growth of the handbooks on the subject. The third edition of Dr. Wilson's excellent text-book lies before us as we take up our pen to notice its eighth edition. The latter volume is literally double the size of the former. Even a casual glance through the 800 pages or so of the new edition will show how thoroughly the author has brought the book up to date, how well he has kept abreast of sanitary progress and research.

In the chapter on Food a new section has been inserted dealing more fully than before with milk in relation to disease. Reference is also made to the later outbreaks of ptomaïn or food-poisoning. The chapters on Air, Ventilation, and Air Analysis have been carefully revised. The chapters on Meteorology, Water, Water Analysis, and Water Impurities have been extended. Those on the Removal and Treatment of Sewage and House Refuse have been almost entirely rewritten. In the chapter on Soils and Localities the part played by filth-polluted soil as a breeding ground for pathogenic organisms is discussed in the light of recent bacteriological research. The account of Infectious and Parasitic Diseases now includes a review of the present position of bacteriology, more particularly in relation to infection, immunity, antirabic "vaccination," and serum therapeutics. The author throws grave doubt on the success of so-called bacteriological treatment, whether in the direction of protection or cure. We think he is fully justified in the attitude of scepticism which he has adopted. "There should," he thinks, "be some pause in the indiscriminate maiming and destruction of animal life with which it [that is, bacteriological research] is inseparably associated, and, to say the least, the somewhat reckless experimentation on human life which its discoveries are believed to warrant, in order to institute a judicial and searching revision of the now widely-extended relations of bacteriology to Preventive and Curative Medicine, and frankly scrutinise the alleged successes of these novel methods of treatment." The lesson of the "dismal failure of Koch's tuberculin," hailed as a panacea for phthisis a few years ago, seems almost to be forgotten.

In the chapter on Prevention and Disinfection, notice has been taken of the newest disinfectants, appliances and methods. The chapter on Vital Statistics has been re-written, and Dr. Wilson has happily availed himself of the fund of information contained in Dr. Tatham's recently issued Supplement to the Report of the Registrar-General for England. Two new chapters—one on Sanitary Law, the other on Sanitary Officers and their Duties—take the place of a lengthy disquisition on sanitary law and official duties, which was included in the late edition.

There are two useful Appendices. The first contains memoranda, regulations, and so on, issued by the Local Government Board for England. The second gives useful tables, formulæ, and engineering data.

From the foregoing analysis it will be seen that Dr. Wilson's handbook is worthy of all praise.

Left-hand Writing. By JOHN JACKSON, F.E.I.S. London: Sampson Low, Marston & Company, Limited, St. Dunstan's House, E.C.

THIS is a writing "copy-book," containing "a complete course of exercises for the acquirement of a free and hygienic style of left-hand penmanship, with grooved tablet for movement drill, and full instructions." The author states that his book has been produced at the suggestion of Sir William R. Gowers, contained in a recent article contributed to the *Journal of Education*. As the *Lancet* remarked in 1891—"Upright writing lends itself more readily to ambidexterity than does sloping writing, and there can be no doubt that a clerk who could write with equal facility with either hand, and could rest one side of the body while the other was working, would be little liable to writer's cramp and similar troubles." Accordingly in the exercises Mr. Jackson has adopted the vertical style.

Manual of Ophthalmic Surgery and Medicine. By WALTER H. H. JESSOP, M.A., M.B. Cantab., F.R.C.S. London: J. & A. Churchill. 1898. Crown 8vo. Pp. 484.

OUR bookshelves are fairly full of manuals of ophthalmic surgery of the same type as Mr. Jessop's, neither better nor worse, each one having some small point in its favour which, while it is contemplated, seems to place it above its fellows. Mr. Jessop has made a very decided addition to the value of his book by the appendix on the regulations for vision-testing, &c., of candidates for the Government services. This, no doubt, will prove a convenience to those who have not in their possession the work of which this is a short abstract.

In his preface the author states that in writing this manual his endeavour has been to make it systematic, practical, concise, and, at the same time, comprehensive. The vast strides that ophthalmology has made during the last few years render it impossible in a book of this size to more than cursorily touch upon most of its branches, and that is just where we consider that the author has erred. He has produced a book which tries to get into its 484 crown 8vo pages a little of everything in the range of ophthalmic surgery, and though he has fairly well succeeded in his endeavour, we fail to see what class of readers will appreciate his labours. There is too much, and not enough. If intended for the student who knows nothing of the subject it is unnecessarily "comprehensive," and the descriptions are quite too "concise" for his assimilation. He would certainly suffer from mental indigestion, and at his examination eructate masses of undigested Jessop. If intended for those who know a good deal already, the information is too incomplete to be of any value, except in one or two portions where the author evidently felt himself thoroughly in his element, and, being there, enjoyed himself by expanding his remarks into a most admirable exposition of his subject. In speaking of operations for the cure of entropion he says, "A very good method in extreme cases is to make a horizontal incision the length of the lid *close to the intermarginal space*" (the italics are ours), "and to fill up the gap thus formed by sewing in a piece of mucous membrane, removed from the mouth or cheek (Van Millingen)." This is conciseness with a vengeance, and were one not already familiar with the details of this, the most valuable and successful, as well as the neatest of all the operations on the eyelids, one would hardly be disposed to try it from the meagre reference (which we have quoted *in extenso*) given above.

Why Mr. Jessop directs the incision to be made "close to" instead of in the intermarginal space we cannot guess. We cannot altogether agree with his pathology of hypopyon, nor does his explanation that the "characteristic shape of the deposit" on the cornea, in keratitis punctata, "is due to the fluids of the eyeball circulating through the pupil," help us very much.

Some of the woodcuts are certainly capable of improvement, but on the whole the book is well got up, and may fairly take its place beside the various others of its size without fear of suffering by comparison.

A System of Medicine by many Writers. Edited by THOMAS CLIFFORD ALLBUTT, M.A., M.D., LL.D., F.R.C.P., F.R.S., F.L.S., F.S.A.; Regius Professor of Physic in the University of Cambridge; Fellow of Gonville and Caius College; Hon. Fellow of the Royal College of Physicians of Ireland. Vol. VI. London: Macmillan & Co. 1899. 8vo. Pp. 944.

THE study of diseases of the circulatory system is continued and concluded in the earlier part of the sixth volume, which brings us within measurable distance of the completion of Clifford Allbutt's System of Medicine, as this classical work is now everywhere called. We are promised two more volumes, concluding the work. The other subjects discussed in the present volume are diseases of the muscles and diseases of the nervous system.

Twenty-six writers, including the accomplished editor, have contributed to the sixth volume, which fully sustains the reputation of the work. In the first section Dr. G. Newton Pitt contributes an article on right-sided valvular diseases, and Sir R. Douglas Powell one on angina pectoris.

The second section of the volume is devoted to diseases of the mediastinum and thymus gland, intra-thoracic growths and tumours, and diseases of blood-vessels and lymphatics. Dr. F. T. Roberts is the author of an excellent memoir on mediastinal diseases. Dr. William H. Welch, Professor of Pathology in the Johns Hopkins University, Baltimore, treats of thrombosis and embolism in the fullest and ablest manner. His definitions of these two conditions leave nothing to be desired; they are at once clear and concise. Another notable article in this section is that by Professor Sir W. T. Gairdner on aneurysm of the aorta.

In the section on diseases of muscles Dr. Batten, of St. Bartholomew's Hospital, writes on myositis, Dr. Hale White on myotonia congenita (Thomsen's disease), Dr. Charles E. Beevor on idiopathic hemiatrophy and hemihypertrophy, and Dr. Aldren Turner on facial hemiatrophy and hemihypertrophy.

Dr. Bevan Lewis appropriately introduces the subject of diseases of the nervous system with an admirable disquisition on the general pathology of this system. The most recent discoveries in the physiology of the nervous system are set forth and explained in the opening paragraphs of his paper, which contains a diagram illustrating the neuronic system with its neurons, axons, and dendrons.

The topics dealt with under the headings "Diseases of the Nervous System" are tremor, "tendon-phenomenon," and spasm (Prof. Sherrington and Dr. Sharkey), trophoneurosis (Drs. Turney, Hopkins, Clifford Allbutt, and Barlow), diseases of the nerves (Drs. George A. Gibson, Fleming, Judson Bury, Head, Aldren Turner, and Mr. Brudenell Carter—the last-named contributing a special article on medical ophthalmology).

Two monographs on diseases of the spine bring this volume to a close. Of these the first is from the pen of Professor Victor Horsley, who describes the diseases of the vertebral column, tumours, and compression palsies. The second is by Dr. J. S. Risien Russell on affections of the spinal meninges.

This brief analysis of the contents of volume VI. will suffice to show the value and interest attaching to its subject matter.

Archives of the Roentgen Ray. Edited by THOMAS MOORE, F.R.C.S., and ERNEST PAYNE, M.A. (Cantab.). Vol. III., No. 2. February, 1899. London: The Rebman Publishing Co.

THIS number of the Archives will possess a special interest for Irish readers, inasmuch as the principal article is one on the "Present Position of the Roentgen Rays in Military Surgery," by Major J. Battersby, M.B., Univ. Dubl.; R.A.M.C. The series of plates which illustrate Major Battersby's communication to the Roentgen Society testify to that officer's ability and zeal, and show how much sterling scientific work may be accomplished even under the most trying and adverse circumstances. An advance base surgical hospital was established at Abadieh on the Nile, eight or nine miles north of Berber, and here also were the headquarters of the X-ray work.

Plate LVII. (*a*) is a photograph of the Nile at Abadieh, and Plate LVII. (*b*) shows the method by which electricity was generated for charging the storage batteries which worked the induction coils. The pulley of a small dynamo was connected by means of a leather strap with the back wheel of a specially-constructed tandem bicycle. The required velocity for the dynamo was thus obtained. Having carefully adjusted the circuit with the storage battery and also with the voltmeter and ammeter, Dr. Battersby's warrant officer took his position on the seat of the bicycle and commenced pedalling. When 15 volts and 4 ampères were registered, the switch close to the handle of the bicycle was opened and the charging of the battery was begun. As the resistance became greater a sensation of riding uphill was experienced, and the services of an additional orderly was requisitioned for the front seat. This bicycle practice was generally carried out in a shade temperature of 110° F., so it was no child's play.

The cases illustrated in the beautiful skiagrams shown by Major Battersby must, as the author says, "convince the most sceptical that the Roentgen rays are of the vastest importance and a great help to our diagnosis in military surgery." The wounded soldier is often saved much mental worry and bodily pain, for probing to find the situation of a bullet may now be regarded as a thing of the past. Even on field service bullets can be localised with mathematical precision in the deeper parts of the body. In the analysis of uncertain fractures also great help is given by the rays.

Writing as Irishmen we are proud of Major Battersby's communication, which marks an era in the history of military surgery. It is to be regretted that his paper is broken into two parts, the description of the plates on page 89 being awkwardly separated from the first part of the paper, which ends abruptly on page 78.

In this number of the Archives W. C. Roentgen's third communication to the Royal Prussian Academy of Sciences, Berlin, on the properties of the X-rays discovered by him, also finds a place.

ERYTHROL TETRANITRATE.

COLONEL A. FORD, Her Majesty's Chief Inspector of Explosives, in a circular letter, dated Home Office, Whitehall, London, S.W., March 24, 1899, draws attention to the dangerous nature of this material. An accident, by which a chemist lost his life, happened at a tabloid factory at Dartford on the 15th of December, 1897. He was engaged in mixing tetranitrate of erythrol with finely-powdered lactose in a mortar when an explosion occurred. Again, at the end of 1898, an accident was caused by tetranitrate of erythrol being inadvertently thrown into a fire, and one person was injured. Tetranitrate of erythrol is possessed of explosive properties, and is highly sensitive, more so indeed to percussion than dynamite or guncotton. As it has lately come into some use in the place of nitro-glycerine as a remedy for angina pectoris, it is very necessary to draw special attention in this Journal to the dangers attending the handling of this drug.

PART III.

SPECIAL REPORTS.

REPORT ON DISEASES OF CHILDREN.

By **Langford Symes**, F.R.C.P.I., &c.; Physician to the Dublin Orthopædic Hospital; Physician to the Homes for Destitute Children; Member of the Childhood Society; Additional Examiner in Medicine, Royal College of Physicians, &c.

I. Whooping-Cough.

(a) *Cause.*

A good deal of work is being done to elucidate the causes and period of infection of whooping-cough. Behla (*Deutsche med. Wochenschr*, 1898, xxiv. 299) concludes without doubt that the virus clings to the expectoration, that the exciting cause is a micro-organism, an amœba which both increases by division and presents the formation of spores, the favourite seat of the parasites being the mucous membrane of the trachea from its lowest branch upwards. He recommends one to catch the transparent slimy sputum of the first stage in a glass previously warmed, and to examine it at once without staining it on a previously warmed object glass in a microscope artificially warmed; the dry preparation distorts the picture.

(b) *Infection.*

Weil (*Correspondenzblatt für schweizer Aertze*, Sept., 1897) some years ago questioned the generally acknowledged statement that whooping-cough remains infectious during the period of the "whooping" or spasmodic stage, and advanced the theory that the infection ceases at the end of the catarrhal period.

His recent observations during three epidemics have verified his opinion, he having traced the infection, not to those with a well-developed cough, but to the brothers and sisters of such cases, they being presumably in the earliest stage of the disease. He has again put this to the test, by exposing nearly one hundred children who had never had the disease to be associated in a ward for three weeks or more with children in the whooping stage. Out of the hundred only one was infected, and that from a child in the very earliest stage of whooping, when, therefore, the catarrhal state may still have existed. Weil has satisfied himself that in some cases infection was conveyed by children before they began to whoop. He urges the isolation of children in the catarrhal stage, and before they begin to whoop.

Dr. Goodhart, in his new volume on "Diseases of Children," February, 1899, says—"I have long believed and taught that the infective stage of pertussis is the catarrhal stage, and this only. Once this has ceased the whooping stage is not so;" and thus Weil's experiment and observations go to corroborate Dr. Goodhart's former views. This is deserving of careful consideration.

Dr. Dawson Williams ("Diseases of Children," 1898), who should here speak with high authority from his experiences in the whooping-cough ward at Shadwell, also states—"It is extremely infectious in the prodromal stage, when the symptoms are not characteristic, and the infection may be carried by fomites. A patient becomes infectious as soon as the catarrh sets in, and before the characteristic whoop develops."

Dr. R. Gilbert, Professor of Diseases of Children in Louisville University, writing in *Pediatrics*, October 15th, 1898, draws attention to the fact that its increase of late years is explained by the increasing facilities for intercommunication and aggregation of people—railroads, schools, &c. The germs, whatever they are, tenaciously maintain their vitality, abound in the sputum, saliva, and expired breath of the patient. Handkerchiefs, bedding and clothes may convey it. It is during the catarrh that precedes the whoop that contagion is most freely spread, the child being allowed to attend school, go visiting, and even kiss other children.

(*c*) *Diagnosis.*

Anyone can usually diagnosticate whooping-cough in the second or convulsive stage, when the spasms of whooping come on in successive fits, with the purple-red congested face, streaming eyes, swollen or œdematous features, the child clutching at the nearest furniture when the seizure is coming on, and the flatulent and regurgitating vomiting of glairy mucus which terminates the spasm. The importance, however, lies in its early detection while it is so infectious. At present we have no certain means of showing, in any given catarrh presented by a child, whether it is or is not the initial and infectious stage of whooping-cough.

Two recent writers attempt to solve the difficulty:—

1. Dr. Illoway, of New York, writing in *Pediatrics*, Jan. 15th, 1899, pins his faith (on the strength, however, of only two cases, which we consider insufficient evidence) to the following phenomena as the earliest pathognomonic sign of whooping-cough *before any catarrh appears*:—

(1.) A short dry hacking cough with no apparent cause in the mouth, pharynx, or respiratory tract, and which cannot be accounted for;
(2.) First in the day only, at long intervals,
(3.) Then occurring at night, and
(4.) Followed by lassitude, languor, and fatigue.

This does not seem to our minds sufficiently striking to be conclusive in every case; nevertheless it should be watched.

2. Dr. Gilbert, of Louisville,[a] holds that he can diagnosticate whooping-cough in the first week. The nurse records on a chart the number of coughs during the day and night for 48 hours, noting the duration of the fit, the character of the cough, the number in each paroxysm, and the intervals between the paroxysms.

He says if whooping-cough is present the patient coughs about once every hour during the day, and once in each half-hour at night; that he will cough 6 or 8 times at each paroxysm, beginning with a big loud cough and tapering down to a mere "hack"—a deep inspiration is then followed by a sense of relief, after which he is free for another hour. The same is observed at night, only the cough is double as frequent.

In simple bronchitis he holds the cough is observed about every minute by day, with a uniform sequence of only one or two "hacks" at a time.

To illustrate this the following diagram is used. The letter "C" represents the cough in size and frequency, large or small. The lines intervening are the hour or half-hour intervals between the paroxysms.

Whooping-cough would read as follows:—

Cccccc———Cccccc———Cccccc———
Cccccc———Cccccc———

that of simple bronchitis:—
C—C—C—C—C—C—C—C—C—C—C—C—C—C— CC—C
CCC— C—CC—, &c.

This will require careful attention on the part of the nurse, but is deserving of accurate testing. It is, however, before any convulsive fits of coughing are observed that the first stage is so likely to be passed over.

I have lately had an opportunity of observing this point again in some recent cases, but my charts bear little resemblance to those of Dr. Gilbert. As far as they go I am assured of their accuracy, for I carefully charted the coughs as they occurred. In cases before the whoop develops, or where, indeed, the whoop *never* develops, a fit of coughing reads somewhat as follows. I give examples of four fits of coughing in such a case :—

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[a] Pediatrics, Oct. 15, 1898.

(1). "CCCC $\underline{\text{long breath}}$ CCCC." (17th day of disease. No whoop yet).

(2). "CC $\underline{\text{breath}}$ $\underline{\text{breath}}$ $\underline{\text{breath}}$ CCC $\underline{\text{breath}}$ CCCC." (20th day. No whoop yet).

(3). "CC $\underline{\text{breath}}$ CCCC $\underline{\text{breath}}$ CC." (22nd day. No whoop yet).

(4). "CC $\underline{\text{breath}}$ CCCCCCCC $\underline{\text{breath}}$ CCCC $\underline{\text{breath}}$ CC." (22nd day. No whoop yet).

There was no whoop in this case so far, although sometimes it ended in vomiting; but all three coughs were *convulsive*, and accompanied by what I regard as one of the most important signs, viz., *flushing of the face.* When the whoop is well developed no doubt exists. My charts show for two examples :—

(1). "CCCC $\underline{\text{whoop}}$ CCCC $\underline{\text{whoop}}$ CCCC $\underline{\text{whoop}}$ CCCC vomit."
(28th day of disease.
18th day of whoop.)

(2). "CCC $\underline{\text{breath}}$ CCCC $\underline{\text{breath}}$ CC $\underline{\text{breaths}}$ $\underline{\qquad}$ $\underline{\text{cried}}$

CCC—CCC $\underline{\text{whoop}}$ CCCC vomit."
(31st day of disease.
21st day of whoop.)

Each fit consists of several paroxysms (of from 2 to 8 coughs each), with a long breath or whoop between them, accompanied by flushing of the face, the last one sometimes ending in vomiting.

(*d*) *Treatment.*

Much improvement is still desirable here.

Dr. M. Lacroix, in a thesis presented to the University of Paris (*Archives of Pediatrics*, xvi., 3-222), treated 25 cases by inhalations of oxygen, medicated with certain antispasmodics. The substances used were—bromoform, bromide of camphor, and aqua laurocerasi. The bag of oxygen communicates by a rubber tube with a reservoir or "saturator" containing pieces of pumice stone saturated with the drug. From the reservoir proceeds an outlet tube to the mask or mouthpiece.

He says 48 quarts of oxygen are used daily in 4 inhalations, 12 each time—at 8 a.m., 12 noon, 4 p.m., and 8 p.m.

He claims that:—

1. It modifies the cough.
2. Obviates complications (broncho-pneumonia, epistaxis),
3. And strengthens the child.

In hospital it is certainly worthy of a trial.

Dr. Gilbert, of Louisville, orders "an *average* dose of tincture of belladonna once every 8 hours, to be increased by one drop daily till widely dilated pupils, flushed cheeks, and dry fauces are observed. When the maximum dose is reached it is continued till the cough abates."

For a child 1 year old give 1 minim for a dose.

He also recommends:—

℞. Potass. bromidi, gr. 7½.
Phenacetin, gr. ¾.
Mucilaginis, ♏. 30.
Aquæ, ad ʒi.

The draught every 8 hours during the night.

Behla says bromoform and antipyrin reduce the attacks decidedly, but are, like the rest, only symptomatic remedies; the best antiparasitic drug we possess, he says, is undoubtedly quinine.

Dr. J. B. Busdraghi, Madrid (*Pediatrics*, November 1, 1898), says we should carry out three indications:—

1. *Disinfection.*—
   A carbolic spray, 2 per cent. strength, for 10 minutes once a day.
2. *Quieting the Nervous System.*—
   Trional brings about a quiet lengthy sleep—grains 1½ to 7½; should this be insufficient, add to it a little chloral hydrate.
3. *Preserving Bodily Strength.*—
   Proper food.

Dr. Madison Taylor, of Philadelphia (*Pediatrics*, April 1, 1899), extols the use of acidulated solutions of quinine, which have, he says, done more good than any other single agent.

He alludes to the dictum that vaccination will cure whooping-cough, and intends to try if it is the case.

To relieve violent paroxysms he suggests:—

Amyl nitritis, ʒss.
Spt. chloroform, ʒiii.
Æther sulph., ʒv.

of which a few drops can be applied by the mother or nurse on a handkerchief held to the child's nose during what he terms the "lock spasm." He says his class can testify to its efficacy, and he has never seen danger from its use.

II.—THREADWORMS.

Dr. Still, of the Hospital for Sick Children, Great Ormond-street, contributes a paper—"Observations on Oxyuris Vermicularis in Children"—to the *British Medical Journal*, April 15th, 1899. Few papers that have appeared for several years past are more excellent than this. Anyone who is familiar with Dr. Still's able and most conscientious work will mark well anything falling from his pen. In 200 consecutive necropsies on children under 12 years the intestine was carefully examined for the presence of threadworms, and these were found to be present in 38 cases—viz., 19 per cent. When, however, only children over two years were included the percentage was higher. In 100 necropsies on children between 2 and 12 years, threadworms were found in 32. In no fewer than 25 out of the 38 cases in which the oxyuris vermicularis was present the worm was found in the appendix vermiformis. Moreover, the appendix is in some cases the *only* part where threadworms are found, sometimes at its extreme tip. The number is sometimes very large. In one case 111 were present here. They are often immature, mostly females, but many males also; sometimes very fully grown ones. "The presence, therefore, of numerous very young threadworms in the vermiform appendix, associated with only a few fully grown ones, seems to show that at least in some cases the vermiform appendix serves as a breeding place for the oxyuris vermicularis." Dr. Still also shows that the dirt on the fingers is extremely unlikely to supply ova in sufficient numbers to keep up the continual discharge of threadworms from the bowel. His observations suggest with practical certainty that "the oxyuris vermicularis also multiplies in the intestine, and that the appendix vermiformis is in some cases its breeding ground." He has found santonin the best drug. Finally, he says:—"The conclusions to which the above observations would seem to point are:—

1. That the appendix vermiformis is a common habitat of oxyuris vermicularis in childhood.
2. That the generally accepted view that every single ovum of oxyuris vermicularis must be swallowed before it can be hatched is at least open to doubt, and there is a strong probability that the appendix vermiformis serves in some cases as a breeding-place for threadworms.
3. That the presence of threadworms in the appendix may cause a catarrhal condition therein, as shown *post mortem* by a swollen appearance, due to thickening of its wall.
4. That this swollen condition of the appendix due to threadworms is associated in some cases with pain in the right iliac fossa, which may simulate ordinary appendicitis.
5. That in the treatment of threadworms large injections must be used, and in view of the difficulty of dislodging the worms from the appendix, and their possible presence in the small intestine, the injections should be combined with the administration of drugs by the mouth."

PART IV.

MEDICAL MISCELLANY.

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Reports, Transactions, and Scientific Intelligence.

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ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—Edward H. Bennett, M.D., F.R.C.S.I.

General Secretary—John B. Story, M.B., F.R.C.S.I.

SECTION OF ANATOMY AND PHYSIOLOGY.

President—D. J. Coffey, M.B.

Sectional Secretary—A. Birmingham, M.D.

Friday, February 3, 1899.

The President in the Chair.

Effects of Sodium Chloride on the Secretion of Urine.

Professor W. H. Thompson read a communication dealing with the effects of minute quantities of sodium chloride on the secretion of urine. Solutions of sodium chloride (·6, ·65, and ·9 per cent. strength) were injected into the external saphenous vein of dogs in quantities varying from 30cc. to 50cc. Urine was collected from both ureters by means of cannulæ. The animals were given a hypodermic injection of morphin, and were anæsthetised with a mixture of chloroform and ether (1 to 2) during the operative procedures. Urine was collected for definite periods of time before and after the injection of salt solution. The results showed—

1. A marked increase in the amount of urine secreted, which reached its maximum in the second hour after the injection, but had not wholly subsided even at the end of four hours. This increase far exceeded the amount of fluid injected. After making allowance for this quantity, the average of ten experiments showed an augmentation of over three hundred per cent. One experiment

showed no increase, and one was not available in calculating this average.

2. Both the total nitrogen and the urea also suffered an increase, though the urine secreted was more dilute. This augmentation reached its maximum in the hour immediately following the injection.

The above effects were found not to be due to a dilution of the blood or hydræmic plethora caused by the injection, nor could they be ascribed to any supposed necessity for getting rid of the sodium chloride injected. In many cases the actual output of chlorides was diminished. No adequate cause has so far been found to account for the diuresis.

DR. R. TRAVERS SMITH asked was it possible that normal sodium chloride solution might stimulate the kidneys to the utmost degree, so that an increase of strength would make no difference.

PROFESSOR THOMPSON, replying, said that in the bladder urine he found a certain output of chlorides, and in the first hour, when the dog was on the table, he found that the output was much the same as in the bladder. After that there was a steady diminution, which seemed remarkable.

The Sensory Distribution of the Seventh Cranial Nerve in Man.

The SECRETARY read for PROFESSOR DIXON, of Cardiff, an abstract of a paper upon this subject, and exhibited a series of lantern slides illustrating the chief points in the communication. The views which Professor Dixon advanced may be summarised as follows:—

1. The facial nerve in man is in a condition comparable with what is found in lower vertebrates. It clearly resembles in its distribution what has been called a typical branchial nerve.

2. The facial possesses two sensory branches—namely, the chorda tympani and the great superficial petrosal nerve. Both of these nerves are probably nerves of taste; the chorda tympani certainly is so, but this has not been definitely proved in the case of the great superficial petrosal nerve. The proved function of the corresponding nerve in lower vertebrates seems to justify the assumption that the great superficial petrosal is a nerve of taste also.

3. The fibres to which the term chorda tympani has been applied by physiologists do not form the chief part of that nerve; they do not represent the pre-spiracular nerve of lower vertebrates nor the corresponding nerve in man, which appears early, and passes into the developing tongue.

The author based these views upon embryological and comparative investigations. He found that the geniculate ganglion of the facial, the chorda tympani, and the great superficial petrosal nerves were developed in the embryo in the manner which His has shown to be characteristic of sensory or afferent nerves. The nerves mentioned must, therefore, be considered as afferent nerves. This has been admitted for some time in the case of the chorda tympani, but the great superficial petrosal has been generally held to be the "motor root" of Meckel's ganglion. Professor Dixon points out that there is a branch of the facial distributed to the palate in fishes, amphibians, &c., and in the former the fibres have been traced to the taste-buds of the palate. This palatine nerve is evidently, from its relations and connections, the representative in lower forms of the great superficial petrosal in man, and, being a taste nerve, the author thinks it may be assumed that the corresponding nerve in man—the petrosal—is also a nerve of taste.

The **President** thought the question of the nerve of taste one of the most difficult in connection with the physiology of the nervous system. Gowers recorded a case in which the nucleus of the fifth nerve appeared to be degenerated, and there was complete loss of taste. He (Gowers) suggested that the connection between Meckel's ganglion and the geniculate ganglion was a branch of Meckel's, and, therefore, derived from the fifth. In that way he worked the fibres of the fifth into the fibres of the chorda tympani, and in a similar manner he suggested that fibres of the fifth might enter the back of the tongue through the glosso-pharyngeal, and that the fifth nerve might thus send the fibres for taste to all parts of the tongue. He himself (President) did not think the chorda tympani absolutely established as the nerve of taste. He thought that the point of greatest value in Professor Dixon's paper was the definite statement that fibres could be traced from the cells of the geniculate ganglion in both directions. This had, to his mind, established for certain that it is a sensory ganglion, and that both the prolongations must be sensory. He should like to hear how the sensory fibres are continued up to the nucleus of origin in the brain.

Professor Symington said that with regard to the distribution of the chorda tympani and the great superficial petrosal, on theoretical grounds he should be in perfect harmony with Professor Dixon. He attached more importance to the mode of development of these nerves than to any number of clinical observations or experimental work on nerves. There was no doubt if one can, from embryological evidence in the human subject, show that from the geniculate ganglion run fibres passing down the chorda tympani to the tongue, and also fibres growing along the great superficial petrosal, these fibres will not be motor. The key to the whole problem is the development of these nerves and their comparative anatomy.

Dr. A. R. Parsons said if the course which the taste fibres take were known with certainty it would be a great aid in the localisation of disease. He was acquainted with Gowers' idea. If the demonstration just given were correct, the question at once arose—Was the pars intermedia of Wrisberg to be looked upon as a continuation backwards of these taste fibres, and is the pars intermedia the nerve of taste of which the chorda tympani and the great superficial petrosal are, to a certain extent, branches? Was it Prof. Birmingham's view that the pars intermedia of Wrisberg is the nerve by which the impulses pass backwards from the tongue and palate, and that it is a sensory nerve instead of a motor, and supplies sensation to the palate? If the great superficial petrosal nerve is not the motor nerve of the palate, what is it?

The President said that if the chorda tympani nerve is cut, loss of taste follows. The loss of taste must not be exclusively explained on the assumption that the chorda tympani nerve contains fibres from the organs of taste, for the chorda tympani nerve may contain other fibres, and there may be an atrophic change in the mucous membrane which would disturb sensation. He thought that Dr. Parsons was on the right line in suggesting the pars intermedia. It is highly probable that the pars intermedia arises as part of the nucleus of the glosso-pharyngeal, and then the glosso-pharyngeal would be established as the nerve of taste. This would be quite in harmony with the other senses—*i.e.*, supplied by one nerve.

The Secretary, in reply, said Professor Dixon did not hold it proven that the great petrosal is a nerve of taste, but he considered this view extremely probable, and for these reasons:—First, he has shown that it is an afferent nerve; and, secondly, it corresponds, very probably, to that palative nerve in the fish which has been traced to the taste-buds of the palate. Regarding the course which the taste fibres pursue towards the brain from the geniculate ganglion, Professor Dixon does not state it definitely in his abstract, but one could infer that he believed that the fibres of the chorda tympani and the great petrosal pass backwards through the pars intermedia to the brain. He (Professor Birmingham) agreed with the President that the pars intermedia probably is connected in the medulla with the upper end of the nucleus of the glosso-pharyngeal. Dr. Parsons was specially interested in the nerve supply of the palate. W. A. Turner showed that of the muscles of the soft palate, the levator palati and azygos uvulæ are supplied through the pharyngeal plexus by the spinal accessory. Lastly, according to Professor Dixon's embryological researches, there ought to be no efferent vaso-dilator or secretory fibres in the chorda tympani nerve; if there are efferent fibres in it, they probably come from the sympathetic or some other cranial nerves.

Anatomical Specimens.

Professor Symington exhibited four specimens of separate acromion process, which he had dissected, and discussed the question as to whether such cases are to be regarded as non-union of the epiphysis or ununited fractures, favouring the former view. He also showed sections of the pelves of two adult male subjects which differed considerably from one another both in the thickness of the pelvic floor and the height of the pelvic viscera and peritoneum.

Dr. Edward H. Taylor said that with regard to the acromion process he was much more inclined to agree with Professor Symington's view of this condition than with Arbuthnot Lane's. Professor Bennett also held the same view. He thought that the very fact of the presence of cartilage on the bones is very strongly in favour of their being epiphyses. He was much interested in the sections of the pelvis. In the excision of the rectum for cancer, the removal is greatly facilitated by opening up early the recto-vesical pouch. The distance of the inner orifice of the urethra from the surface undoubtedly varies in different subjects.

Professor W. H. Thompson asked how the first diagram of the pelvis shown compared with the condition in the child—whether it is to be regarded as a kind of arrest of development.

Professor Symington, in reply to Professor Thompson, said that it was his own opinion that it represented a persistence of a fœtal condition. In his work on the child he described the peritoneum as extending down as far as the commencement of the prostate. There is no doubt that at a still earlier period of fœtal life it extends beyond this.

Anæsthetics and Urinary Secretion.

Professor W. H. Thompson made a preliminary communication to this subject, of which the following is a brief summary :—

1. A mixture of ether and chloroform (2 to 1) did not cause an increased diuresis. This was the anæsthetic used in his sodium chloride research. Six experiments were performed on dogs.

2. A. C. E. mixture on the contrary did, in most cases, markedly increase the amount of urine. In one case suppression was caused. This dog proved to have albuminuria.

3. Ether also produced an increase of urine, as did chloroform likewise, but with this latter anæsthetic only one experiment had so far been carried out.

4. Little or no effect was produced by the various anæsthetics on the total output of nitrogen and of urea, even in cases where marked diuresis was caused.

5. The after-effect on the output of chlorides showed a marked diminution. What the immediate effect was had not so far been definitely decided.

6. In eight experiments (with different anæsthetics) the urine was examined for carbohydrates with chloride of phenyl-hydrazin and sodium acetate. All but one gave crystals. Some of these were undoubtedly glucosazon, others glycuronic acid, while in one case it is probable the crystals were those of galactosazon.

In all cases the dogs were injected with a solution of morphin.

The Section then adjourned.

SECTION OF STATE MEDICINE.

President—H. C. Tweedy, M.D.
Sectional Secretary—Ninian Falkiner, M.B.

Friday, February 17, 1899.

The President in the Chair.

On the Prevalence of Tuberculosis in Ireland and the Measures necessary for its Prevention.

Dr. Grimshaw read a paper on the above subject. [It will be found at pages 161 and 251.]

After this paper was read the following resolution was adopted on the motion of Dr. John William Moore, President R.C.P.I., seconded by Dr. McWeeney:—"That the Section of State Medicine having an accurate knowledge of the prevalence and mortality of pulmonary consumption and other forms of tuberculosis, hail with pleasure the movement to control this destructive group of infective diseases, which has been inaugurated by the British Medical Association. The Section urge upon the Council of the Royal Academy of Medicine in Ireland, as a matter of public and professional duty, to co-operate in every possible way with those who are engaged in the present determined effort to cope with tuberculosis, now proved to be the deadliest scourge of the human race."

On the Death-rate from Tuberculosis, as exemplified in the Male Population of England, for the five years 1891–95.

Dr Martley read a short paper on the above subject.

After pointing out that the deaths from this cause were nearly as numerous as those from the whole group of zymotic diseases, and that they annually averaged about 240 per 100,000 living, he drew attention to the very unequal mortality at different ages, tubercular disease being most fatal in the first few years of life, and again though to a less degree, about 40. However, on correcting the county rates for varying age distribution, he found that there was comparatively but a slight difference, and that for all practical purposes sufficiently correct results could be obtained by using the crude rates.

The Bacteriological Aspect of Tuberculosis.

Dr. McWeeney read a paper on this subject and demonstrated a series of illustrative microscopic preparations and photographs. With regard to the morphology of the tubercle fungus he mentioned that he had never failed to detect genuinely ramified forms in sputum whenever he had leisure to seek them out. The type of ramification was that of the genus Cladothrix, and from the researches of Firchel, Coffin Jones, Hazo Bruns, and Ledoux-Lebard, there could be no doubt of the biological affinity of the tubercle fungus to Streptothrix and Actinomyces. He gave reasons for refusing to admit the spore-nature of the unstained bodies so often found imbedded in the rods, and pointed out the hygienic importance of that fact. He emphasised the value of the staining reaction long considered to be peculiar to the tubercle and leprosy bacilli, but now known to be shared by a smegma bacillus, and by the pseudo-tubercle bacilli isolated by Mockler and others from cow-dung—by Mockler, from the leaves of Timothy grass near the Grübersdorff Sanatorium, and by Rabinowitsch, from butter. Cultures of the three last named organisms were demonstrated as well as slides showing their remarkable resemblance to the genuine tubercle organism. The cause of the staining reaction was the presence in the sheath of the bacillus of a peculiar *wax*, as was shown last year by Aronsen. This underwent gradual extraction by alcohol and ether, with the result that the bacilli lost their specific staining reaction, a fact which may account for their gradual disappearance from tissues that have been treated for reactionary purposes with these substances. The relation of the bacillus of human to that of avian and piscine tubercle was discussed and cultures of these organisms demonstrated. The discovery by Ledoux-Lebard of the bacillus of fish-tuberculosis and the recently demonstrated inoculability of poikilothermous animals with a variety of a bacillus capable of thriving at ordinary temperatures were pointed out as important recent additions to our knowledge. The pathogenesis and modes of infection of the human system were then described, and the relative frequency of the conceptional placental and post-natal origin of the disease discussed, and determined in the light of recent research. An attempt was likewise made to appreciate the importance of the *rôle* played by sputum, meat and milk in the dissemination of tuberculosis, and the speaker recounted his own experiences of tuberculin injection as the diagnostic method applied to cows, and laid stress upon what appeared to be the relative infrequency of the disease amongst Irish dairy cattle. The practice of keeping them "on grass" for more than six months of each year might be regarded as an "open-air" mode of treatment applied to the bovine race. He concluded by earnestly deprecating over zeal in the adoption of measures intended to be preventive, but which by involving irksome restriction or intolerable publicity would speedily be found to defeat their own purposes.

Distribution of Tuberculosis in Ireland.

Dr. P. Letters, by statistical tables, sought to prove that tuberculous disease throughout Ireland—tabes mesenterica and tubercular meningitis more so than phthisis—was regulated almost exclusively by aggregation of population. Small towns and villages bred tuberculosis largely. He controverted all theories referring the prevalence of Irish tuberculosis to meteorological or climatic causes, or to the proportionate amount of bog and barren mountain land, to surface elevation, or to geological formation. These did not operate as influential factors, or their effects could not be measured by death-rates recorded over large areas. In the counties, death-rates per million living from (1) tabes mesenterica and tubercular meningitis combined, and (2) from phthisis, correspond so closely with the several degrees of urbanisation as to leave no reasonable doubt of a causal relationship. This line of argument led to the conclusion that tuberculosis, as found in Ireland, is essentially a town and village-bred disease, exclusively rural localities showing next to no mortality from tabes mesenterica and tubercular meningitis, and a greatly reduced death-rate from phthisis. The most tuberculous region in Ireland extended along the eastern and south-eastern seaboard, and was mapped out by the counties of Antrim, Down, Dublin, Wexford, and Waterford. The least tuberculosis was found in a compact region in the north-west comprising the five contiguous counties of Donegal, Leitrim, Cavan, Fermanagh, and Longford. These two regions contain respectively a high and a low percentage of urban population. A table giving the percentage of inhabitants of towns over 500 to the total population in each of the thirty-two counties showed that, where the town-dwelling population was high, so also was tuberculosis, and *vice versâ*. Freedom from tuberculosis, or the reverse, in the smaller areas of poor-law unions throughout the country, depended on the same general law of aggregation into town and village communities. Kerry, taken as a whole county, was statistically rather tuberculous. Divided into two regions, North Kerry including the unions of Tralee, Listowel, and Killarney, and South Kerry, the remaining unions of Dingle, Cahirciveen, and Kenmare, twenty of the Irish counties are found to be less tuberculous than North Kerry, while South Kerry is considerably freer from tuberculosis than any whole county in Ireland. This was explained by the fact that the percentage of urban population in South Kerry is only nine, while in North Kerry it is nineteen. A point to which Dr. Letters directed special attention was that the most correct test of the tuberculous character of a locality is when the mortality from tabes mesenterica and tubercular meningitis combined bears a high rate to that from phthisis. This high proportion of juvenile to adult tubercular mortality in Ireland invariably corresponds with a high degree of urbanisation.

The Section then adjourned.

ANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D. Univ. Dubl.;
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Vital Statistics

For four Weeks ending Saturday, March 25, 1899.

The deaths registered in each of the four weeks in the twenty-three principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Average Rate for 4 weeks	Towns	Weeks ending				Average Rate for 4 weeks
	Mar. 4	Mar. 11	Mar. 18	Mar. 25			Mar. 4	Mar. 11	Mar. 18	Mar. 25	
23 Town Districts	27·6	27·8	27·5	28·9	28·0	Limerick	23·9	11·2	18·2	40·7	23·5
Armagh	21·4	21·4	7·1	28·5	19·6	Lisburn	8·5	25·7	4·3	12·8	12·8
Ballymena	73·8	16·9	16·9	22·5	32·4	Londonderry	29·8	31·4	26·7	20·4	27·1
Belfast	27·5	27·2	29·4	31·4	28·9	Lurgan	22·8	22·8	22·8	22·8	22·8
Carrickfergus	11·7	11·7	5·8	17·5	11·7	Newry	20·1	32·2	32·2	24·1	27·2
Clonmel	39·0	43·8	19·5	19·5	30·4	Newtownards	28·3	22·7	34·0	17·0	25·5
Cork	28·4	28·4	25·6	29·1	27·9	Portadown	6·2	24·7	6·2	12·4	12·4
Drogheda	7·6	53·3	30·4	11·4	25·7	Queenstown	5·7	34·4	17·2	11·5	17·2
Dublin (Reg. Area)	31·0	27·3	31·9	31·2	30·3	Sligo	20·3	40·6	20·3	10·2	22·9
Dundalk	16·8	20·9	46·1	37·7	30·4	Tralee	16·8	33·6	22·4	33·6	26·6
Galway	22·7	22·7	18·9	15·1	19·9	Waterford	29·8	45·8	23·9	31·8	32·8
Kilkenny	18·9	47·2	4·7	14·2	21·3	Wexford	22·6	22·6	4·5	9·0	14·7

In the week ending Saturday, March 25, 1899, the mortality in thirty-three large English towns, including London (in which the rate was 23·2), was equal to an average annual death-rate of 23·1 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·8 per 1,000. In Glasgow the rate was 23·7. In Edinburgh it was 20·7.

The average annual death-rate represented by the deaths registered during the same week in the Dublin Registration Area and in the twenty-two principal provincial Urban Districts of Ireland was 28·9 per 1,000 of their aggregate population, which, for the purpose of this return, is estimated at 1,012,148.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 2·0 per 1,000, the rates varying from 0·0 in sixteen of the districts to 13·9 in Waterford—the 16 deaths from all causes registered in that district comprising 6 from measles and one from scarlatina. Among the 186 deaths from all causes registered in Belfast are 7 from measles, one from scarlatina, 6 from whooping-cough, 3 from diphtheria, 4 from enteric fever, and one from diarrhœa.

In the Dublin Registration Area the births registered during the week ending March 25th amounted to 158—78 boys and 80 girls; and the deaths to 214—114 males and 100 females.

The deaths, which are equal to the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 31·9 in every 1,000 of the population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the Area, the rate was 31·2 per 1,000. During the twelve weeks ending with Saturday, March 25th, the death-rate averaged 29·4, and was 3·5 under the mean rate in the corresponding portions of the ten years 1889-1898.

The number of deaths from zymotic diseases registered was 22, being 5 below the average for the corresponding week of the last ten years, and one under the number for the week ended March 18th. The 22 deaths comprise 12 from influenza and its complications, 2 from whooping-cough, one from diphtheria, 4 from enteric fever, and one from diarrhœa.

Only 6 cases of scarlatina were admitted to hospital during the week, being 6 under the admissions in the preceding week: 22 scarlatina patients were discharged during the week, and 88 remained under treatment on Saturday, March 25th, being 16 under the number in hospital on the previous Saturday. There were, in addition, 6 convalescents at Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital.

The number of cases of enteric fever admitted to hospital was 18, being 8 under the admissions in the preceding week, and 2 under the number for the week ended March 11th: 13 patients were discharged, one died, and 73 remained under treatment on Saturday, being one under the number in hospital at the close of the preceding week.

Twenty-one cases of diphtheria were admitted to hospital against 3 in the preceding week: 2 patients were discharged, 2 died, and 22 remained under treatment on Saturday, being 17 over the number in hospital on that day week.

The number of deaths from diseases of the respiratory system registered was 48, being 2 under the average for the corresponding week of the last ten years, and 11 under the number for the previous week. The 48 deaths comprise 30 from bronchitis and 17 from pneumonia.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N., Long.* 6° 15′ *W., for the Month of March,* 1899.

Mean Height of Barometer,	30·053 inches.
Maximal Height of Barometer (1st, 10 30 p.m.),	30·685 „
Minimal Height of Barometer (8th, 9 p.m.),	28·985 „
Mean Dry-bulb Temperature,	43·4°.
Mean Wet-bulb Temperature,	40·6°.
Mean Dew-point Temperature,	37·0°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·226 inch.
Mean Humidity,	78·9 per cent.
Highest Temperature in Shade (on 31st),	59·9°.
Lowest Temperature in Shade (on 22nd),	26·6°.
Lowest Temperature on Grass (Radiation) (on 23rd),	21·8°.
Mean Amount of Cloud,	46·1 per cent.
Rainfall (on 12 days),	·911 inch.
Greatest Daily Rainfall (on 25th),	·285 inch.
General Directions of Wind,	W., S.W., N.W.

Remarks.

A dry and generally favourable month. From the 12th to the 19th conditions were anticyclonic, and the diurnal range of temperature was large—amounting to upwards of 30 degrees Fahr. at some inland British stations. On Sunday, the 19th, a large and deep depression travelled southwards across Scandinavia to Central Europe, and in its wake a series of secondary depressions brought strong northerly winds, snow and hail, and intense cold to all parts of North-western Europe. In some districts of Great Britain the mean temperature of the week ending Saturday, the 25th, was 10°

to 12° below the average. The last few days were cloudy, mild and showery—a fresh S.W. gale being felt on the 28th and 29th.

In Dublin the arithmetical mean temperature (45·1°) was 2·0° above the average (43·1°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 43·4°. In the thirty-three years ending with 1898, March was coldest in 1867 and 1883 (M. T.=39·0°), and warmest in 1893 (M. T.=48·1°), and in 1868 (M. T.=47·3°).

The mean height of the barometer was 30·053 inches, or 0·137 inch above the corrected average value for March—namely, 29·916 inches. The mercury rose to 30·685 inches at 10 30 p.m. of the 1st, and fell to 28·985 inches at 9 p.m. of the 8th. The observed range of atmospheric pressure was, therefore, 1·700 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 43·4°. Using the formula, *Mean Temp.=Min. + (Max. — min. × ·485)*, the M. T. becomes 44·9°. The arithmetical mean of the maximal and minimal readings was 45·1°, compared with a twenty-five years' average of 43·1°. On the 31st the thermometer in the screen rose to 59·9°—wind, W.S.W.; on the 22nd the temperature fell to 26·6°—wind, W.N.W. The minimum on the grass was 21·8° on the 23rd.

The rainfall was ·911 inch, distributed over 12 days. The average rainfall for March in the twenty-five years, 1865–89, inclusive, was 2·061 inches, and the average number of rainy days was 16·5. The rainfall, therefore, and also the rainy days were much below the average. In 1867 the rainfall in March was very large—4·972 inches on 22 days. On the other hand, the smallest March rainfall was ·288 inch on 8 days in 1893.

The atmosphere was more or less foggy in the city on 4 days—viz., the 5th, 15th, 16th, and 17th. High winds were noted on 9 days, reaching the force of a gale on two occasions—the 28th and 29th. Snow or sleet occurred on the 9th, 20th, 21st, 22nd and 23rd; and hail also fell on the days named. The temperature exceeded 50° in the screen on 19 days, compared with 9 days in 1898, 14 in 1897, 21 in 1896, 13 in 1895, 22 in 1894, 26 in 1893, and only 7 in 1892. It fell to or below 32° in the screen on five occasions. The minima on the grass were 32°, or less, on 13 nights, compared with 15 nights in 1898, 9 in 1897, 8 in 1896, 10 in 1895, 12 each in 1894 and 1893, and 25 in 1892. The thermometer never rose to 60° in the screen, and never failed to reach 40°. Solar halos were seen on the 26th and 27th. Lunar halos appeared on the 19th and 24th.

The rainfall in Dublin during the three months ending March 31st amounted to 5·562 inches on 51 days, compared with 4·570 inches on 48 days in 1898, 7·069 inches on 57 days in 1897, 4·898 inches on 47 days in 1896, 9·084 inches on 52 days in 1895, 6·028 inches on 53 days in 1894, 5·196 inches on 49 days in 1893, 4·808 inches on 48 days in 1892, only 1·650 inches on but 32 days in 1891, and a twenty-five years' average of 6·411 inches on 51·0 days (1865–1889, inclusive).

At Knockdolian, Greystones, Co. Wicklow, 1·080 inches of rain fell on only 9 days. The corresponding figures for March, 1898, are ·765 inch of rain on 12 days. The maximal fall in 24 hours was ·310 inch on the 28th. The total rainfall since January 1, 1899, equals 9·690 inches on 51 days.

The rainfall in March at Cloneevin, Killiney, Co. Dublin, was ·67 inch on 9 days, compared with 1·29 inches on 15 days in 1898; 3·28 inches on 23 days in 1897, 2·61 inches on 23 days in 1896, 3·29 inches on 21 days in 1895, 1·11 inches on 14 days in 1894, ·26 inch on 9 days in 1893, ·98 inch on 10 days in 1892, and a fourteen years' (1885–98) average of 1·932 inches on 15·7 days. The maximum in the 14 years was 3·59 inches in 1888, the minimum was ·26 in 1893. At this station the total rainfall since January 1 was 6·95 inches on 45 days, compared with a fall of 4·61 inches on 44 days in the first quarter of 1898. On the 28th, ·15 inch fell.

At the National Hospital for Consumption, Newcastle, Co. Wicklow, the rainfall was—in February, 4·115 inches, on 16 days (·950 inch being measured on the 20th); in March, 1·054 inches on 9 days (·341 inch being measured on the 28th). The total rainfall from January 1 to March 31, inclusive, was 9·929 inches on 48 days, compared with 4·767 inches on 40 days in the first quarter of 1898, and 10·086 inches on 57 days in the first quarter of 1897. The extremes of temperature were—in February, highest, 57·1°, on the 28th, lowest, 32·7°, on the 3rd; in March, highest, 61·0° on the 31st, lowest, 26·7° on the 23rd.

PARACENTESIS PERICARDII.

DR. J. H. BURTENSHAW publishes (*Medical News*, New York, March 11th, 1899) an interesting case of paracentesis pericardii. The effusion occurred rather suddenly during the course of an asthmatic attack, and though only 1½ ozs. were drawn off, great relief was afforded. The patient lived nearly two months after the operation.

PERISCOPE.

TREATMENT IN THE EARLY STAGES OF ACUTE APPENDICITIS BY SALINE APERIENTS.

A. Ernest Maylard, M.B., reports (*Glasgow Medical Journal*, March, 1899) cases where acute appendicitis yielded to the following treatment:—Copious warm water enemata should be administered with the object of obtaining a natural evacuation, or failing that, of removing any fæcal matter within the rectum and lower colon. Then small teaspoonful doses of sulphate of magnesium dissolved in a couple of wineglassfuls of warm water should be administered hourly until the bowels commence to move; this usually takes from six to eight doses. Hot linseed poultices are the best and most soothing local applications.

MORPHINISM AND MORPHINOMANIA.

In a work on the morphin habit lately published in Paris, much interesting information concerning morphinism and morphinomania is given. It is stated that Germany, France, and the United States are the countries in which the vice is most common. Statistics are furnished of 1,000 cases collected from all parts of the world—650 men and 350 women. These statistics show that, of the males, the medical profession supplied the largest number, 40 per cent.; men of leisure come next with 15 per cent.; then merchants, 8 per cent.; peasants, clergymen and politicians occupy the lowest position on the list. Women of means constitute the most numerous class among the female morphinists, 43 per cent.; followed by wives of medical men, 10 per cent. It is said that in Germany there are entire villages whose inhabitants are addicted to the use of morphin, but the general belief that the morphin habit is more extensively practised in Paris than in any other city is contradicted. Morphinomania occurs with the greatest frequency between the ages of twenty-five and forty. The direct action that morphin exercises on the organs of generation in both sexes, producing impotence in the male and amenorrhœa in the female, is well attested.—*Gaillard's Medical Journal.*

LITERARY NOTES.

The Rebman Publishing Co.'s new books include the following:—A text-book of "Diseases of the Eye, Ear, Nose, and Throat," edited by George E. De Schweinitz, M.D., and B. Alex. Randall, M.D., of Philadelphia, assisted by a large staff of collaborators; a text-book of "Obstetrics," by Barton Cooke Hirst, M.D.; Gould's Year Book of "Medicine and Surgery," 1899 issue; Professors Van Valzah and Nisbet's new work on "Diseases of the Stomach;" Professor Keen's Monograph on "The Surgical Complications and Sequels of Typhoid Fever;" a small work on "The Sanitation of British Troops in India," by Capt. E. Carrick Freeman, R.A.M.C.; and new editions of "Starr's Diseases of Children;" Baldy's "Gynæcology" and Vierordt's "Medical Diagnosis." The same firm will also shortly issue a "Text-book of Pathology," by Professor Stengel of Philadelphia; an entirely new "Pocket Medical Dictionary," edited by Dr. W. A. Newman-Dorland, also of Philadelphia; an Atlas of "External Diseases of the Eye," by Professor O. Haab of Zurich, edited by G. E. De Schweinitz, M.D., being Vol. 6 in their "Hand Atlas" series; and Dr. J. P. Crozier-Griffith's Manual on "The Case of the Baby."

ACUTE ALCOHOLIC POISONING IN A CHILD AGED FOUR YEARS.—DEATH.

W. H. Coltart, L.R.C.P., reports (*Birmingham Medical Review*, March, 1899) a case of acute alcoholic poisoning in a child aged four. In the absence of his mother from the bedroom he drank about five ounces of neat brandy. Almost immediately he lost consciousness. On admittance to hospital he was unconscious and could not be roused; face flushed, pupils contracted, conjunctival reflex absent, and temperature 94° F. Death resulted the following day.

TREATMENT OF TYPHOID FEVER BY CHLORINE.

Dr. Reynold W. Wilcox recommends (*Medical News*, New York, February 11th, 1899) the regular use of chlorine in typhoid fever. Drachm doses of chlorine water may be administered every three hours. Dr. Wilcox concludes—1. That in the treatment of typhoid fever chlorine can be safely administered until complete disinfection of the alimentary canal is obtained. 2. Under its use the tongue becomes cleaner, the appetite and digestion better, the fever lower, and the stools devoid of odour save that due to chlorine. 3. The general strength, intellectual processes, and nervous conditions improve. 4. The disease is shortened in duration, and the patient usually proceeds to a rapid and complete recovery.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

"Tabloid" B. P. Pills.

Messrs. Burroughs, Wellcome & Co. are preparing a series of tabloids representing certain pills of the British Pharmacopœia. Each preparation in this new series of "Tabloid" Compressed Drugs represents in dosage and active ingredients the corresponding pill of the British Pharmacopœia, 1898. The practitioner is thus enabled to avail himself of the official formulæ, together with the prompt activity, perfect keeping properties, accuracy of dosage and quality of ingredients, which are so characteristic of "Tabloid" Preparations. Their dainty compactness and ease in administration leave nothing to be desired, and it may fairly be assumed, judging from "Tabloid" preparations which have been submitted to the test, that these products will be available under conditions of climate which injuriously affect pills. The following is the list of these useful "Tabloids":—Aloes and Iron, gr. 4; Colocynth Compound, gr. 4; Aloes and Myrrh, gr. 4; Blue Pill, gr. 4; Colocynth and Hyoscyamus, gr. 4; Ipecacuanha and Squill, gr. 4; Lead and Opium, gr. 4; Rhubarb Compound, gr. 4.

Diet Cards.

The fifth edition of Dr. W. Langford Symes's "Diet Cards for the Consulting Room or Pocket" has been forwarded to us for review. We have no reason to alter the favourable opinion we had of the fourth edition when it was published just a year ago, and to which we gave expression in the number of this Journal for April, 1898. Neatly printed by H. Silverlock, 92 Blackfriars'-road, London, S.E., and put up in packets costing half-a-crown each, these diet cards cannot fail to prove as useful in the future as they have been in the past.

Tabloid of Bismuth and Dover's Powder.

This preparation is made by Messrs. Burroughs, Wellcome & Co., in accordance with the following formula, which was suggested by a Belfast physician:—

Bismuth subnitrate	gr. 2½.
Dover's powder	gr. 2½.

The combination of bismuth with ipecacuanha and opium has of old been found to give relief in acid dyspepsia and in irritable conditions of the stomach. In diarrhœa and dysentery good results are often obtained by the administration of frequent small doses of these drugs in combination. In certain cases of enteric fever also this tabloid cannot fail to be of use.

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PART I.

ORIGINAL COMMUNICATIONS.

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ART. XIX.—*Further Observations on Uterine Cancer and its Treatment.*[a]

By THOMAS MORE MADDEN, M.D., F.R.C.S. Ed., M.A.O. (*Hon. Causâ*), Royal University, Ireland; Obstetric Physician and Gynæcologist, Mater Misericordiæ Hospital, Dublin, &c., &c.

THERE can, unfortunately, be no question of the increasing frequency of cancerous disorders, including those of the uterus, as evidenced by recent reports of the Registrar-General. Nor is there less doubt of the wide differences of opinion still existing with regard to the respective value of the various methods of treatment available in cases of malignant diseases of the uterus. I, therefore, venture to bring the latter subject again before the Gynæcological Section of the Academy, in the hope that even so imperfect a recapitulation of my earlier and more recent observations may possibly elicit the opinions of others more competent than myself to discuss the gravest and not least frequent of the maladies peculiar to women.

Whether the views expressed in this paper are likely to be confirmed or corrected it is not for me to anticipate. In either case I shall content myself with the belief that they are not altogether devoid of clinical foundation, being based on observations extending over a period of twenty-five years in the gynæcological department of the Mater Misericordiæ Hospital, Dublin.

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[a] Read before the Obstetrical Section of the Royal Academy of Medicine in Ireland, on Friday, April 21, 1899.

Within the last six years, from November, 1892 to 1898, inclusive, 1,056 gynæcological cases came under notice at the hospital, and of these 31 were cases of uterine cancer, and 12 of vulvar or vaginal malignant disease—that is to say, the proportion of such cases to all others was, roughly speaking, 3 per cent. of the former, and 1 in 88 of the latter. In the preceding five years there were somewhat less cases of uterine cancer—viz., 23—and 10 cases of vulval or vaginal malignant disease noted.

Moreover, although I cannot at present tabulate my earlier experience, I have sufficient evidence in my former notes of a large number of cases of uterine cancer to justify the conclusion that the proportion of such cases observed in the hospital during my first fourteen years' service there, although somewhat smaller than that recorded in the more recent periods, were it to be tabulated, would include considerably upwards of a hundred cases of uterine carcinoma within that twenty-five years referred to.

Confining myself, however, to the cases of this kind noted in the last eleven years, I may observe that the general origin of uterine cancer in the cervix was, I think, shown in 47 out of these 54 instances. In them, also, its probable connexion with cervical lacerations, in a majority of cases, was evinced by its occurrence in 39 women who had borne children, and in only 15 nulliparæ or unmarried women. Whilst of the other predisposing causes of carcinoma uteri, that of age was proved by the fact that 36 of these patients were approximating to or shortly beyond the menopause—*i.e.*, from 40 to 50 years of age; 10 were beyond the latter age; 8 were under 40, and of these one instance of medullary cancer of the uterus occurred in a girl only sixteen years of age.

In these observations, dealing with this subject as I now do from a clinical standpoint, under the heading cancer or carcinoma of the uterus are included not only epithelioma, medullary, encephaloid, or soft cancer, and the more exceptional scirrhus or hard carcinoma, but also sarcomatous growths within the connective tissue of the uterus, and the other malignant conditions that are clinically though not histologically inseparable.

Hence, I must here group together all those pathological conditions of the uterine tract characterised by the malignant development of infective cells, by the local proliferation or constitutional effects of which (unless the result be obviated by timely and complete removal of the primary disease, or by some intercurrent fatality) death must eventually and inevitably be occasioned.

Early Diagnosis and Symptoms of Uterine Cancer.—I may remark that my chief purpose in this paper is to re-urge the importance of early recognition and prompt treatment of the first evidences of cervical carcinoma, inasmuch as I hold that once the disease has extended upwards so as to implicate extensively the superior uterine zones, or when it has originated in and largely disorganised the latter, any treatments proposed, including hysterectomy, can as a rule be regarded as merely more or less effective palliative measures.

Of the ordinary symptoms by which in the cases referred to patients were induced to apply for the gynæcological examination, by which the nature of their disease was disclosed, the most important were hæmorrhagic or other abnormal vaginal discharges to which, though generally at a later period, uterine or peri-uterine pain were commonly added.

Amongst these earlier symptoms one of the most frequent and constant was hæmorrhagic uterine discharge unconnected with other recognisable causes. This, more especially when occurring after the climacteric period, should arouse suspicion of its probable source in malignant disease, and always demands that careful local investigation by which its origin may be traced.

Vaginal Discharge in Cancerous Cases.—Another generally early and characteristic symptom of malignant disease of the uterus, and particularly of its medullary forms, is a thin albuminoid exudation from the vagina, occasionally blood-stained, but more commonly of a light greenish colour, and offensive in smell from the first. This, as the malady progresses, gradually becomes more excessive in quantity as well as more ichorous, blood-stained, or muco-purulent, and, above all, assumes a special and almost pathognomonic fœtor, distinct from the fœtidity frequently present in other gynæcological cases where local cleanliness is neglected. By this irritant exudation the external parts in cases of advanced cancer are liable to become excoriated, and the most intense pruritus occasioned. Whilst at the same time, by the abominable and far-penetrating odour of that profuse albuminoid cancerous discharge by which her genitalia are bathed, and her linen stiffened as though with putrescent starch, the wretched patient's life is rendered a misery to those about her as well as to herself. This trouble is, however, one which may generally be effectually relieved by the means to which I must again refer.

Pain.—The extent and character of the pain complained of in cases of uterine cancer is chiefly dependent on the locality as well as the special form of the disease in each instance, being most intense where the fundus or body are implicated, and least experienced where the disease is in vaginal portion of the cervix, more especially in the more common epitheliomatous and medullary growths. In such cases the cervix may occasionally be destroyed by the former, or the vagina filled by the latter, without the occurrence of any very acute suffering.

In few of the instances of uterine cancer that have come before us was pain, one of the earlier of the symptoms by which the patient's attention was called to her disease. But generally, as the disease progresses, and more especially in its scirrhus form, the so-called pathognomonic dolor gradually manifests itself, and by the increasing burning or lancinating pain, chiefly referred to the sacral region, and always exacerbated at night, the patient is at length driven to seek relief, and that too frequently only when a cure is all but hopeless.

It therefore cannot, I think, be too often reiterated that it is possible to recognise the incipient stage of cervical cancer, should the patient fortunately come under examination before the advent of so-called pathognomonic symptoms or cachexia. I have elsewhere more fully referred to the methods by which this may be accomplished, but as their great importance and significance are not infrequently ignored they may be here briefly recapitulated. In the first place, then, even at an early stage of the disease, as was long since pointed out by Montgomery, on careful examination the margin of the os uteri is found hard and often fissured. In the situation of the muciparous glands there are felt several small and distinctly defined projections, almost like grains of shot or gravel under the mucous membrane. Pressure on these with the point of the finger gives rise to pain or nausea. The circumference of the os uteri feels indurated or turgid, and is of a deep crimson colour, or, if eroded, presents some slightly projecting points, which bleed readily on touch. These nodules when excised will be found under microscopic examination to afford all the characteristics of malignancy, and hence the cautious employment of the curette so as to bring away a sufficient amount of the abnormal tissue for microscopic examination should be resorted to in every case of suspected or possible adenomatous or cancerous degenerations. I have to thank my colleague, Professor McWeeney, for having by the examination of such specimens afforded me the evidence of malignancy in several cases long before any characteristic hæmorrhage, discharge or pain was complained of, and so enabled the removal of the disease whilst it was still, as I believed, thus curable.

Amputation of Cancerous Cervix Uteri.—I have already stated that in the vast majority of the cases of uterine cancer that came under my observation the disease commenced in the vaginal portion of the cervix, and in only one-fifth of them did it apparently originate in the body or fundus uteri. Moreover, in that large proportion of such cases the cancer apparently remained, for a time at least, localised within the cervical zone, whence, as clinical experience demonstrates, it may in some cases be effectually removed by the timely amputation of the cervix above the area of malignant infection. Nor do the reasons, properly applied in other cancerous affections to the removal of a portion of the organ implicated, appear to me to justify the objections raised on such grounds to that procedure in the cases now referred to, inasmuch as the cervix is structurally distinct from, although anatomically continuous with, the body and fundus of the uterus. I shall not, however, dwell on this point, but will merely mention some of the facts on which the views stated are based.

The Results of Early Removal of the Cancerous Cervix.—With regard to the immediate consequences of cervical removal for cancer I can speak with some certainty from my own experience. Whilst, as to the probability of the subsequent recurrence of the disease in the uterus or elsewhere, even at possible risk of being deemed presumptuous in formulating an opinion from a comparatively limited number of cases, such as those in which I have been able to follow up the after-history of the patients thus operated on, I may here venture to summarise the facts at my disposal, and to mention the inferences that appear to me thus justified. In the first place, I have so far seen no mortality directly consequent on the operation. Secondly, of thirty-one cases in which I amputated the cervix for cancer or supposed cancer and was able to trace the result, in one instance the disease returned in the uterus within four months, in five cases it returned there or elsewhere within a year, in two cases within two years, in one within three years, and in one the patient came back nearly four years after discharge from hospital with labial cancer. On the other hand, in ten cases there was no return of cancer within a period of four years, and I might mention that some patients I thus operated on more than ten years ago have since remained free from it. In five other cases the information procurable was limited to two years, and in six cases to one year after the operation, and indicated no recurrence of the disease within those periods.

These results may, I venture to think, be favourably contrasted with those obtained by the probably bolder, but not necessarily more successful, surgeons, who unhesitatingly, and as a general rule, advocate and practise the complete removal of the uterus in every case of carcinoma localised in any part of that organ. For, as just shown, the immediate mortality of the amputation of the cancerous cervix in my cases was *nil.* Moreover, of the patients so operated on two-thirds were apparently free from cancer at the end of the subsequent periods referred to, and, as far as I know, have since continued so.

The Method of Amputating the Cancerous Cervix which was followed in these instances is somewhat different from that more generally adopted, and may, perhaps, be here briefly referred to. With the exception of some instances, in which either supra-vaginal amputation or the vaginal flap operation with the knife was resorted to, in the great majority of cases I have relied on the infra-vaginal removal of the primarily affected neck of the womb either by the steel wire écraseur or by thermo-cautery. But, before this was done we invariably, in the former instance, transfixed the cervix above the supposed limits of disease by a steel wire ligature so as to prevent retraction of the divided part, and to allow of its being drawn down for that subsequent thorough and deep cauterisation with the actual cautery of the stump, which, when the thermo-cautery had not been used for its separation, is, I think, always essential, and frequently successful in preventing any recurrence of cancer in the dense fibrous cicatricial tissues thus left. It need hardly be added that the necessary measures were taken to secure patency of the uterine orifice in these cases.

Hysterectomy for Uterine Cancer.—Having elsewhere discussed in detail the published statistics of the various operations for removal of cancerous uteri by vaginal and abdominal methods, I shall not here occupy time with these points. I fully admit, and in my own practice have recognised the fact, that in some instances—viz., either when the disease has distinctly originated in the fundus or body of the uterus, or as a palliative measure, in some advanced cases of uterine cancer—hysterectomy may be an unavoidable necessity. Nor can anyone for a moment question that its immediate mortality, more especially by the vaginal procedure, has been now reduced to a very small proportion of the cases operated on. None the less do I still maintain that these successful immediate results in no way represent the ultimate or curative consequences so obtained, and that they afford no ground *per se* for the adoption of those operations, as a general rule of practice, in the cases under consideration.

We have superabundance of statistics to show in how many cases of uterine carcinoma hysterectomy has been performed, and in how large a proportion of cases the patients were discharged, apparently convalescent, from hospital a few weeks afterwards. But before we can accept those statistics as any proof that the patients in question were cured by the operation, or even that they lived longer than would otherwise have been the case, the still imperfectly discharged onus of establishing these facts devolves on those who rely so exclusively on such procedures. The accuracy of the published statistics of the results obtained in some cases where patients were considered as cured a few months, or even a year or two, after hysterectomy is in no way affected by the refusal to accept the conclusions thus arrived at. For if in such statistics be included, as is probably the case, the majority of instances of uterine cancer—viz., those in which the disease is located in the cervix—there need be no marvel, in the present advanced stage of intra-peritoneal and pelvic surgery, at the results so obtained. And I still venture to think that no less beneficial consequences, to say the least of it, might probably, as already shown, have been obtained with lesser risk by the timely removal of the affected cervix. But if, on the other hand, they refer to cases in which the upper regions of the uterus were extensively implicated by cancer, I must only confess my incompetence to realise how structures of such intense vascularity and intimate connection with lymphatic plexuses emptying into the vessels of the broad ligaments, as the fundus and body of the uterus, can long be the seat of cancerous changes without almost inevitable extension of the disease beyond possibility of capture by the surgeon's knife. Hence, under such circumstances the ultimately successful or curative results of hysterectomy must, I fear, be regarded as largely fortuitous and exceptional, although in some cases the fatal issue may possibly be thus staved off for a time.

Any probable extension of life and immediate relief from suffering are obviously justification of whatever measures may afford the best chance of such results. On these grounds, therefore, and merely as a palliative, I have, in compliance with the urgent solicitation of the patient, resorted to hysterectomy in a few—viz., in only five—of the many cases of carcinoma affecting the upper portions of the uterus that I have seen within the long period referred to. There are, of course, no definite conclusions to be drawn from so limited a number of instances, but I may, nevertheless, observe that in all but one of these exceptional cases of hysterectomy for cancer the patients recovered from the immediate effects of the operation, and were for a time relieved from their previous condition of misery. The ultimate results were, however, to a large extent in accordance with my anticipations. In one of these cases the disease returned in the bladder within five months, in another the patient died of disease of the spinal cord, which I believe to have been malignant, eighteen months later, and in only one was the patient alive, and apparently free from cancerous recurrence, at the end of two and a half years, when I last heard of her.

Palliative Treatment of Uterine Cancer.—In the majority of cases in which carcinoma uteri has not been recognised and removed before extension has occurred beyond its primary situation in the cervix, our chief function must, I fear, be the alleviation of suffering and the mitigation of symptoms. The methods by which those objects were attempted or accomplished in the inoperable cases of uterine cancer under my notice may be here recapitulated—firstly, with regard to the relief of pain and discharge, and secondly, with regard to the local applications by which an effort was made to arrest for a time the progress of the disease.

Relief of Pain in Inoperable Uterine Carcinomata.—Although I have found none of the newer hypnotics or analgesics, with the exception, perhaps, of orthoform, so promptly effective and reliable in giving ease to the pain of uterine cancer as the older fashioned preparations of opium, such as Battley and the acetum opii, I would venture to deprecate their too frequent exhibition in such cases. In the advanced stage of uterine cancer, when from the extension of the disease, more especially to the bladder or ureters, sedatives are most likely to be required, opiates or morphin cannot be habitually efficiently used without such increase in their dosage as to derange the digestive functions, and the nervous system and thus probably accelerate the fatal issue. Moreover, under these circumstances I have noticed a special intolerance of the hypodermic use of morphin, and have seen what under ordinary conditions would have been a perfectly safe hypodermic injection of this agent followed by "that sleep which knows no waking." Hence, in the cases referred to, we have in the hospital, as a rule, endeavoured and generally succeeded in affording sufficient sleep and mitigation of pain by ringing the changes in succession in the various old and new analgesics as each in turn lose their effect. Amongst those thus employed were the bromides of potassium and sodium, trional, chloral, sulphonal, belladonna, conium, and lastly, the newest and probably one of the most generally useful pain allayers in uterine cancer cases—viz., orthoform.

Deodorisation of Cancerous Discharge.—As already observed, many patients in an advanced stage of uterine cancer suffer still more from the fœtor of the vaginal discharge than from the accompanying pain or hæmorrhage. The mitigation of this source of discomfort is therefore a matter of great practical importance in such cases. The mere frequent syringing with warm water, occasionally relied on, is, *per se*, almost useless for this purpose, whilst some of the deodorants, such as iodoform and ichthyol suppositories, sometimes prescribed, are only less offensive in their own odour than the discharge, the fœtidity of which they are designed to mask. Nor is the desired object sufficiently effected by the ordinary antiseptic solutions of izal, carbolic or boric acid, &c. Of such agents one of the most effective that I have employed is peroxide of hydrogen—which, even for some hours after its use, leaves the patient free from this horrible addition to her miseries. But, as the cost of this agent is a bar to its use by the poorer class of patients, in the majority of such cases, we may be enabled to overcome the characteristic smell of cancerous vaginal discharges almost as effectively by the use of one or other of the cheaper as well as the best of all deodorants—viz., firstly, chlorate of sodium in the proportion of a couple of drachms to a quart of hot water; or secondly, by a one per cent. solution of formalin; and thirdly, by the use of turpentine. The latter can be thus employed by putting half an ounce of pure turpentine with a spoonful of magnesia into a quart of boiling water, and then pumping the mixture with the syringe from one vessel into another until the temperature will be reduced to blood heat, when the turpentine at the same time will be thus mechanically sub-divided, and will remain diffused through the fluid for a sufficient time to allow the vaginal passage to be washed out before the oil comes together again. No deodorant or styptic application in general use appears to afford more distinct respite from the fœtor as well as hæmorrhage of cancerous uterine discharge than this.

In some cases, however, similar effects can advantageously be produced by applying a small tampon saturated in a mixture of pure terebene and glycerine to the cancerous surface, where it may be left *in situ* for several hours.

I may now refer to some of the other local applications to which I have given a trial in these cases.

Methylene Blue.—More than five years ago I called attention to the value of this agent as a local analgesic in pruritus and other gynæcological cases, and since then I have frequently employed it in this way and by internal administration to relieve the pain of uterine cancer. In cases of inoperable cervical carcinoma a pledget of sterilised gauze saturated in a five per cent. solution of methylene blue will commonly not only allay pain but also cleanse and temporarily improve the condition of the part, whilst the injection of a similar solution by the needle into the substance of a medullary growth will frequently for a time cause some apparent diminution of its size and a decided abatement in the amount and fœtor of the discharge.

Local Injections of Absolute Alcohol in the manner recommended by Schultz were employed in some of my inoperable cases of cervical cancer. In one of these the first injection of alcohol was followed by such intense local pain and constitutional disturbance as to prevent its repetition. In two other cases similar but deeper parenchymatous injections repeated at intervals of two or three days were attended with some diminution in the amount and fœtor of the discharge and apparent shrinkage in the diseased structure. But in neither of these cases did the patient remain sufficiently long under observation to warrant any conclusion as to the probable duration of these effects.

Greater Celandine or Swallow-wort, in the form of a liquid extract, which a few years ago was reintroduced as a remedy for cancer was, on the suggestion of my colleague Dr. Redmond, who was then trying it in other cancerous affections, employed in several of the cases of uterine disease of this class in my wards, and with results somewhat similar to those he obtained. In three cases in which the celandine was administered internally and applied locally, the condition of the cancerous ulceration was rapidly and distinctly improved for a time; in two no change was produced, and in none of them was any permanent or curative effect produced during the period the patients were under my observation.

Serum-therapy.—As the treatment of uterine carcinoma by the injection of the Streptococcus erysipelatis and other serums has been carefully investigated and unfavourably reported on by a Committee of the New York Surgical Society, and hence as there appeared to be no justification for the further trial of these agents, they were not employed in any of the cases here referred to.

Potential Cautery or Escharotic Treatment.—In cases where the disease is beyond possibility of removal by operation, or where it is apparently returning in the cicatrix after operation, or where by the destruction for a time at least of the cancerous tissues we may hope to afford relief from pain and discharge or to arrest hæmorrhage, and so prolong life and render death more easy, escharotics may in some instances be usefully employed. Of those which I have myself tried in such cases, including nitric and chromic acids, acid nitrate of mercury, ethylate of sodium, and chloride of zinc, I have found the last unquestionably the most effective, safest, and least painful, and have long since discarded other agents of this kind in any case of uterine cancer.

In some cases of extensive cancerous disease of the fundus or body of the uterus, and even when the cavity was filled and enlarged by the malignant outgrowth, and the patient's strength greatly exhausted by the accompanying hæmorrhagic and fœtid discharge and pain, I have succeeded apparently in prolonging life for a considerable time, and yet more distinctly in relieving the symptoms by thoroughly curetting away as far as possible the cancerous structures and freely cauterising the thus exposed uterine wall with chloride of zinc.

Actual Cautery.—In two instances of advanced cervical cancer with glandular complications and considerable discharge and hæmorrhage, I destroyed the diseased surface by deep cauterisation with the actual cautery as a local palliative. In the first instance the eschar sloughed out, leaving a cleaner and comparatively healthy looking small ulcerated surface. In this case the cauterisation afforded marked relief from pain, hæmorrhage, and discharge as long as the patient remained under observation. In the second case no benefit was produced.

Electrolysis in Uterine Cancer.—As alternatives to the older escharotic methods the galvano-cautery or the negative electric current were also tried for a time in cases of carcinoma in my wards, on the strength of the success claimed for them by Drs. Apostoli of Paris, Byrne of Brooklyn, and Parsons of the Chelsea Hospital. The effects, according to the latter authority, produced by the passage of the current directly through the cancerous structure, consist of a cessation of growth, gradual subsidence of pain, shrinking and hardening of the tumour, followed by improved nutrition and improvement of constitutional condition. In the few cases in which I endeavoured to follow the directions published for the procedure some benefit was for a time evinced. But, possibly, from inexperience in the methods or insufficiency of perseverance, I was not myself enabled to secure the more marked and permanently good results hoped for from this practice in any of my own cases.

In conclusion, I have only to add that my clinical experience, extending over more than a quarter of a century in three hospitals, of the various measures there tried in the treatment of uterine cancer may be briefly summed up in the statement, that up to the present I know of but one generally feasible means of possibly curing this disease, and that is by its early recognition, and its timely and complete removal in the way which has been described in this communication.

ART. XX.—*On Room Disinfection, with special reference to Formalin Vapour as a Disinfectant.*[a] By T. PERCY KIRKPATRICK, M.D. Univ. Dubl.

IN considering the question of the prevention of tuberculosis, my attention was strongly arrested by the need there was for an efficient yet easily applicable mode of room disinfection. What appeared to me to be most desirable in such a method was simplicity, for there are many ways of disinfecting rooms, clothes, furniture, &c., which are of undoubted efficiency, but they are all of a more or less costly nature and involve considerable trouble in their employment. In the case of tuberculosis, however, what was wanted was a simple process, for the long period over which a case of the disease extends renders it absolutely necessary that any means used for disinfection should be often repeated if it is to be of any service. In cases of acute infectious diseases, such as fevers, &c., one application of the process may be enough, but in tuberculosis something more is wanted.

In view of this, if we examine the methods commonly used, we shall, I think, find that there is much to be desired. We may divide these methods into two great classes:—(*a*) Disinfection by means of germicidal gases, or "gaseous disinfection," and (*b*) disinfection by means of washing or spraying with germicidal solutions. Of course, we have combined with both these groups the various processes of mechanical cleaning.

The former class would at first sight appear by far the most suitable. It would be merely necessary to generate the gas and leave it to permeate all parts of the room without further trouble on our part; whereas in the employment of solution every part of the room, as well as every article in it, must be carefully gone over by the operator. Objects which would be injured by water must be removed to be treated by heat or some other method. The advantages of gaseous disinfection, then, are so obvious that we need not wonder at the numerous efforts which have been made to introduce some efficient gas. In the efficiency though lay the difficulty, for a gain in simplicity will not be an advantage if it is made at the sacrifice of efficiency.

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[a] Read before the Section of State Medicine of the Royal Academy of Medicine in Ireland, on Friday, April 28, 1899.

An examination of those methods of gaseous disinfection which have hitherto been employed will not show any very remarkable qualities in either of these respects, and in consequence of this their use had well-nigh been altogether abandoned in favour of the other methods.

The three gases which till recently had been most used were sulphurous acid, chlorine, and bromine. With the general public the first has long been the most popular; indeed, we hear of it in Homeric times when Odysseus used it to purify his house after the slaughter of the wooers. Its popularity depends mainly on its powerful smell; for, as regards efficiency, we must rank it lowest of the three. I wish briefly to refer you to some experiments by well-known investigators to show the conclusion which had been arrived at as to the possibility of gaseous disinfection.

First, as regards sulphurous acid, this was tried experimentally by Koch, and his results are very instructive.

The gas was generated by burning sulphur in an iron vessel in the room. He obtained a percentage vol. of the gas, at one hour after setting fire to the sulphur, of 2·89.

After 24 hours this had fallen to 0·02
After 48 hours „ „ 0·01

One pound of sulphur to every 1,000 cubic feet, giving 1·1 vol. per cent. of the gas.

Micrococcus prodigiosus and the micrococcus of blue pus after 48 hours' exposure in this atmosphere were found unaffected.

In a further experiment, the percentage vol. of the gas 1 hour after starting was 3·12, and 24 hours after starting it had fallen to 0·015.

From these and other experiments Koch concluded that for the purposes of practical disinfection sulphurous acid is useless. The gas disappears so rapidly that, even when the initial proportion is large, it fails to kill spores freely exposed after being thoroughly moistened. Where it is less in amount, prolonged exposure had no effect on micrococci.

Besides this objection on the score of inefficiency, the gas is objectionable. The smell of the sulphur persists in the room for a long time even with free ventilation, and is very unpleasant. All metal and gilt ornaments, pictures, &c., must be removed or protected from the gas or they will be tarnished. It is evident, then, that little can be adduced in favour of sulphurous acid as a gaseous disinfectant, and we see that it is almost wholly discarded now by the profession.

Let us next examine chlorine. Drs. Fisher and Proskauer have experimented with it and bromine. I quote from their paper on the subject.

By preliminary experiments in an artificial chamber they arrived at conclusions as to the percentage vol. of the gas which it would be requisite to use for disinfection. The gas was generated by the action of hydrochloric acid on chloride of lime, and it was calculated that about 15½lbs. of chloride of lime was requisite for every 1,000 cubic feet to get the necessary percentage of gas.

It was further found necessary to saturate the air with moisture either by evaporating water in the room or by spraying. It was found also that for practical purposes the gas should be generated from several vessels, and that these should be placed near the ceiling of the room on account of the high sp. gr. of the gas.

Twenty-seven specimens of bacteria were exposed freely under these conditions for 24 hours, and out of this number 22 were killed.

14 out of 15 specimens of earth spores.
2 out of 4 anthrax spores.
2 out of 4 Micrococcus prodigiosus.
4 out of 4 Aspergillus niger.

The results were not so good when the specimens were sheltered, all surviving except one sample of Aspergillus niger. Articles of clothing, &c., which were exposed were found after the experiment to be discoloured, and to be so injured in texture as to be readily torn. We see, then, that though with chlorine most of the bacteria freely exposed were killed, penetration was bad. The conclusion arrived at may be stated in the experimenter's own words. "Complete disinfection of rooms appears, therefore, to be unattainable by means of chlorine. . . . . Nevertheless, chlorine may be of great value as a disinfectant in many cases, since it is, at least, capable of destroying all organisms, even the most resistent, which lie on the surface. Hangings, &c., may be removed (for disinfection by steam) and the surfaces either washed with a solution of mercuric chloride, or scraped. A preliminary partial disinfection by means of chlorine would greatly lessen the danger of those employed in a subsequent and more thorough disinfection. In all cases where a gaseous disinfectant is needed, chlorine is the best at our command, being superior to either sulphurous acid or bromine." All hangings, carpets, clothing, &c., must be removed, as chlorine seriously injures them, and metallic surfaces must be protected by varnish or vaseline. The cost of disinfection amounts to about 4d. per 1,000 cubic feet.

When we consider these results it will be obvious to everyone that for the purpose we had in view chlorine was quite unsuitable. It has little or no advantage over the more certain methods in the ease of application, and the difficulties involved in its use quite prevent it ever coming into general employment.

Disinfection by bromine gas is almost entirely prohibited by the cost—1/- per 1,000 cubic feet—and it does not appear to have any advantages over chlorine, except, perhaps, a more uniform diffusion, however, which is compensated for by greater sluggishness.

We are consequently forced to the conclusion that none of the conditions which I postulated as essential for a gaseous disinfectant are fulfilled by those commonly in use. They are not in any case absolutely efficient, nor are they easily used. Of the three, the sulphurous acid is the most convenient, but, as Koch says, it is practically useless. To disinfect with chlorine is perhaps as troublesome as with some of the germicidal solutions, while it is not as efficient. We cannot wonder then that gaseous disinfection fell into disrepute, and was generally neglected. Though we cannot deny the efficiency of the other methods of disinfection, still it is obvious that for the purpose I had in view they were useless. The trouble and expense involved in their frequent use effectually prevents them from helping us here. What was wanted was a simple, cheap means of effecting complete surface disinfection of an ordinary dwelling-room and its contents without damage to any of them. Formaldehyde appeared to be the very thing required, and it was with the object of testing the claims put forward on its behalf that these experiments were undertaken. The gas is easily generated by means of a lamp or "altformant," sold at a moderate price by Messrs. Zimmermann. This apparatus is perfectly simple in structure. It consists of a hollow tin cylinder, at one end of which is a reservoir with lamp for burning the methylated spirits, while into the other end fits a metal chamber for holding the paraform tabloids. The action of the products of combustion of the spirit on the paraform is to convert it into formaldehyde in a gaseous state. This gas CH_2O has, it is said, a sp. gr. almost equal to that of the air, so that it diffuses rapidly to all parts of the room. While possessing a powerful germicidal action, the gas has no injurious effects whatever on fabrics, metals, &c., consequently it is not necessary to remove anything from the room in which it is used. When undiluted it has a powerful and penetrating odour, and is irritating to the mucous membrane of the nose and conjunctiva, but it does not appear to be poisonous to animals.

It is claimed for the gas that it is a deodorant and germicide of great power, and that it has considerable power of penetration into clothes, &c. It is very easy to manipulate, safe and not costly, so that if it can be shown to be efficient it would appear to be an ideal disinfectant. The penetrating smell, which, I may remark, rapidly disappears on dilution with air, further recommends it to the public; for it is, as I said before, by means of their noses that the public generally estimate the value of a disinfectant. A vast quantity of literature has already accumulated about the uses of formaldehyde, and many experiments have been undertaken to test its efficiency as a germicide. Perhaps I may be permitted to bring a few of the more recent of these to your notice before passing on to those made by Dr. Littledale and myself. Drs. Fairbanks and Grawitz, of the City Hospital, Charlottenburg, Berlin, used for their experiments an ordinary sleeping-room of 3,213 cubic feet capacity, or 93·6 cubic metres, and diffused 1 gramme of formaldehyde to every cubic metre, or 1 tabloid to every 35 cubic feet. The room was closed for 30 hours, and various cultures were exposed.

(*a*) Anthrax exposed freely at various heights. All remained sterile, and were injected into mice without any ill results.

(*b*) Anthrax exposed between bits of cloth on the floor showed no sign of growth.

(*c*) Anthrax exposed as in (*b*), but placed between two mattresses, showed abundant growth after 20 hours.

Bacilli of diphtheria and typhoid fever and staphylococci freely exposed gave no growth.

The surface of the dust appeared sterile, but showed growth of bacteria in its deeper parts. Tubercular sputum dried in vacuo and exposed in a glass vessel for 30 hours was then rubbed up with sterilised water and injected into guinea-pigs without any ill result. Control experiments gave positive results with guinea-pigs.

The conclusions which we appear to be warranted to draw from these experiments and from numerous others by different observers appear to be that, while the disinfectant action on the surface of objects is very efficient, its penetrative power is not very marked—in other words, formaldehyde has as great disinfectant powers as the best of the gases hitherto used, if not greater, while it is free from many of the objections to which the others were open.

If we compare these results with those to be detailed by Dr. Littledale, we shall, I think, find the same general result, though in his case the quantity of gas was not so great (about 1½ tabloids to every 100 cubic feet), nor was the exposure so long (9 hours). The experiments with the pus-smeared gauze and with the sputum on the cover glass are very interesting, showing as they do the powerful germicidal action of the gas on the surface of such objects.

It may be objected that the formaldehyde was present in the exposed objects when they were inoculated on the culture media, and that in consequence, though growth was prevented, we are not warranted in assuming that the micro-organisms were dead. The answer to this is, that when the inoculation was made on fluid media, where the gas could easily disperse, the results were the same. I believe this objection may have some force when solid media are used, and may perhaps explain the various results obtained by different experimenters.

We are, I think, justified in concluding that in formaldehyde, generated as I have described, we have a most useful adjunct to our disinfectants. In efficiency it may not perhaps reach our ideal, still it possesses more of those characteristics which go to constitute that ideal than any other of the gases; and while this is so, it is equal, if not superior, in efficiency to any of them. As regards ease of manipulation, it far surpasses them all, while its safety is all that could be desired.

I firmly believe that great benefit will be derived, both by patients and attendants, from its regular use in the homes of the tubercular. We must gladly welcome every additional means to combat the spread of this dreadful disease, since those at our disposal are so inadequate, and especially will we welcome one which appeals to our reason as logical, and the claims of which have answered the test of experiment.

ART. XXI.—*Experiments on Formalin Vapour as a Disinfectant.*[a] By H. E. LITTLEDALE, M.B.; Assistant in the Pathological Laboratory, Trinity College, Dublin.

BY the kind permission of the visiting staff of Sir Patrick Dun's Hospital we were able to carry out our investigations, and Dr. Haughton kindly placed at our disposal his X-ray developing room. This room is a small one of about twenty-eight cubic metres content, with no opening into it except the door, which fits very tightly, and a ventilator over it, which was hermetically closed before the experiments. Opposite the door there is a table, on which the altformant lamp was placed, and ten grammes of formalin tabloids were vaporised by heat. The door was closed tightly, and all crevices plugged with tow; and at the end of nine hours the door was opened, and the various test objects were placed in nutrient media.

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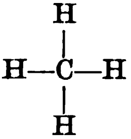
[a] Read before the Section of State Medicine of the Royal Academy of Medicine in Ireland, on Friday, April 28, 1899.

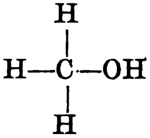
As to the nature of formalin, it is a 40 per cent. solution in water of formic aldehyde.

Aldehydes are hydroxyl substitution products of the hydrogen in hydrocarbides, and formaldehyde is the simplest of the series.



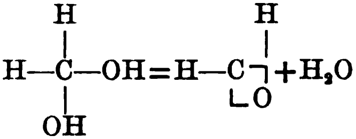
$$\mathrm{H{-}\overset{H}{\underset{H}{C}}{-}H}$$

Methane.



$$\mathrm{H{-}\overset{H}{\underset{H}{C}}{-}OH}$$

Methyl-alcohol.



$$\mathrm{H{-}\overset{H}{\underset{OH}{C}}{-}OH{=}H{-}\overset{H}{C}{=}O+H_2O}$$

Formaldehyde and Water.

In order to test whether the formalin vapour, generated as described, was really an efficient disinfectant and capable of destroying bacteria when exposed to it, experiments were undertaken in such a way as to copy the conditions usually present when one has to disinfect a room after, *e.g.*, diphtheria or scarlatina.

Several species of bacteria grown in different media were exposed in different ways, to be described later on. The following is a list of these bacteria:—

(1.) An emulsion of the common yellow coccus of the air made in boiled water, the coccus having been grown on gelatine.

(2.) A similar watery emulsion of a mixture of *Bacterium coli commune* and *Staphylococcus pyogenes albus* which had been grown together on an agar tube.

(3.) A pure culture of the typhoid bacillus growing actively in bouillon.

Besides these known bacteria, objects containing a mixture of unknown bacteria were also used. These were:—

(1.) Sputum from a case of cirrhosis of the lung, dried on cover glasses in an oven at 37° C.

(2.) Fresh gonorrhœal pus, smeared well into small pieces of plain unsterilised gauze.

(3.) A gelatine plate, on which were growing numerous bacteria out of putrid urine, some of which, however, had been specially marked, and proved to be a Micrococcus ureæ non-liquefaciens.

(4.) Dust from the wall of the room where the experiments were going to be made.

To expose the bacteria in the watery emulsion form would have been useless as a practical test for a gaseous disinfectant, so they had to be brought into a dry state in order that the vapour might be able to act on them.

In order to do this, clean silk threads, which were not sterilised, were cut up into small pieces about half an inch long and laid in watch glasses that were also just ordinarily cleaned with boiled water and dried over a flame. Several drops from each of the liquid test objects were then poured over them, and they were left for about ten minutes to soak well. They were then taken and wrapped in pieces of clean, but unsterilised, filter paper, so that one had several little loosely-folded packets of threads, soaked in typhoid bouillon, in an emulsion of *Bacterium coli commune* with *Staphylococcus pyogenes albus*, and in an emulsion of the air yellow coccus, and, added to these, there were also the cover glasses of dried sputum and the pus on gauze, which, however, was not quite dry when the experiments were started.

Tubes of nutrient media, inoculated just before the experiment, were also used as tests.

Three test tubes containing a sloped agar surface, and two containing sloped blood serum, were prepared in the following way:—

One agar tube, 12·5 cm. long by 1·5 cm. wide, was smeared with a mixture of *Bacterium coli commune* and *Staphylococcus pyogenes albus*, taken from an agar tube, on which they were growing together, the length of the smeared surface being 6·5 cm. from the bottom of the tube. A second agar tube, exactly the same measurements and smeared to the same extent with the same bacteria. Control tubes of both these were made.

One agar tube, 15·75 cm. long and 1·5 cm. wide, smeared with a pure culture of typhoid over an extent of surface 7 cm. from the bottom of the tube.

Two blood-serum tubes, 15·5 cm. long and 1·5 cm. wide, smeared with dust from the room over an extent of 4 cm. from bottom of the tube.

The tubes were all left open on a table in the room, on the same level as the gas generator and four feet away from it. One of the agar tubes containing coli and coccus was inverted, and one of the serum dust-smeared tubes kept as a control.

The three control tubes were put into the oven at 37° C., and kept there for twelve hours, after which time they all showed a most luxuriant growth the entire length of the smear.

When the experiment was over—that is, after the test objects had been nine hours exposed to the gas—the tubes were left till all smell of formalin vapour had left the room, then their wool plugs were reinserted, and they were placed in the oven at 37° C.

The blood-serum tube smeared with dust grew over the whole extent of the smeared surface, that is, 4 cm.; so the vapour was apparently unable to penetrate at all events any further than 11·5 cm. into the tube with efficient action.

The agar tube, 12·5 cm. by 1·5 cm., smeared with coli and coccus mixture over an extent of 6·5 cm., showed, after twelve hours at 37° C., a marked growth for 5·5 cm., which terminated in a sharply-defined horizontal line; so the vapour apparently penetrated the tube 7 cm. in an efficient manner, as even after five days at 37° C. no further growth above the transverse line took place.

The inverted tube grew over a distance of 4·5 cm., terminating abruptly just as the previous one; but the vapour appears in this case to have had a more penetrating action when ascending the tube than when descending it, as in this case it penetrated 1 cm. further into the tube. No further growth above the line after five days at 37° C.

The agar tube, 15·75 cm. by 1·5 cm., smeared for 7 cm.

with typhoid, grew, after fourteen hours at 37° C., over a distance of 3·75 cm., but no further even after weeks; so the vapour penetrated efficiently in this case to a depth of 12 cm.

The gelatine plate of urine bacteria was exposed open on a shelf several feet away from the gas generator, and about four feet above it. It was then covered and removed, and a colony of Micrococcus ureæ non-liquefaciens was picked off next day, and smeared on a fresh gelatine plate. No trace of growth took place even after four days on the fresh plate.

The threads, dried sputum, and pus-smeared gauze were exposed in the following ways:—

Several threads soaked in the air yellow coccus emulsion and let dry were exposed open in a watch glass on top of the experiment room door high above and far away from the generator. After the nine hours exposure they were embedded in gelatine that was semi-solid in a Petri dish, and kept at room temperature in September. These showed no trace of growth after five days.

Threads steeped in typhoid bouillon and let dry, were loosely wrapped in filter paper and placed in a piece of lint loosely folded and laid on a table near the generator. These embedded in gelatine showed no sign of growth after five days.

Threads steeped in *Bacterium coli* and *Staphylococcus pyogenes albus* were placed in filter paper loosely folded, and put into the middle of the Medical Directory. They also were sown on gelatine and showed no growth after two days, so one thread was transplanted on to agar and put in the oven at 37° C., where a most luxuriant growth developed after twelve hours, and at the end of three days colonies of both the coli and staphylococcus began to develop in the gelatine, and after five days the growth was profuse, the coccus beginning to liquefy the gelatine.

Threads of yellow air coccus emulsion dried and wrapped in blotting-paper, and then hung up in the pocket of a coat near the door. These were embedded in gelatine, but showed only a few minute colonies beginning to develop at the end of five days.

Threads in coli and *Staphylococcus pyogenes albus* emulsion wrapped dry in filter paper and left on the table near the generator embedded in gelatine showed no trace of growth after five days.

Threads in yellow coccus emulsion dried and wrapped in filter paper, were placed in a watch glass on the floor in a corner of the room. Embedded in gelatine showed copious growth after two days.

Threads soaked in typhoid bouillon, dried and wrapped loosely in filter paper and then in lint, left on the table. These were dropped into bouillon and kept at 37° C., but showed no trace of growth after five days.

Threads in coli and staphylococcus emulsion dried, wrapped in filter paper, and hung up in the pocket of a coat near the door. Placed in bouillon, and kept at 37° C., showed a luxuriant growth and complete turbidity of the bouillon after twelve hours. Other similar threads to these exposed open in a watch glass on the table, then transferred to bouillon at 37° C., showed no trace of growth after five days.

Typhoid bouillon dry threads exposed open in a watch glass transferred to bouillon, showed no growth at 37° C. after five days.

Cover glass smeared with sputum and dried in the oven at 37° C., exposed open on a table, then transferred to bouillon and kept at 37° C., showed no trace of growth for three days, but on the fourth day the bouillon became quite turbid, due to the presence chiefly of a micrococcus. A control cover glass showed, under similar temperature conditions, a copious growth after twelve hours.

Two pieces of gauze smeared with gonorrhœal pus, one kept as a control, were partly dried, and the control put into bouillon, which became thickly turbid with numbers of different bacteria after twelve hours at 37° C. The other piece partly dry, exposed open on the table, and then transferred to bouillon at 37° C., showed no trace of growth for three days, but on the fourth day the surface of the bouillon was coated with a thin skin, which consisted of long threads of some form of leptothrix, but no other bacteria were present.

Control tests in bouillon of all the thread objects experimented with, showed copious growth after twelve hours at

37° C. These, then, are all the test objects exposed, and the results of the exposure. When I entered the experiment room nine hours from the time the experiments were started, the smell of formalin in the room was not very strong, and I was able to stay in the room, leaving the door open, though it was very unpleasant; the lamp was out, and there was nothing left of the tabloids in it. After leaving the door open for fifteen minutes, I started inoculating the tubes, &c., in the manner described after nearly all smell of formalin had gone.

Now let us consider what practical results we have got from these experiments. To begin with, they were undertaken under conditions far more favourable to the action of the disinfectant than one ever meets in actual practice. The room was a small one, with absolutely no opening into it except the door, which fits very tightly, and which was made more resistant to the escape of the gas by plugging the keyhole and underneath the door tightly with tow. Again the bacteria were exposed more or less openly, not buried in dust or lying in crevices, or in the middle of bundles of clothes, &c.

The experiments with the tubes which were inoculated and exposed openly are of especial interest, as they show that the vapour seems only capable of penetrating a tube efficiently for a certain distance, and what is more strange, its action ceases abruptly; but the actual distance of efficient penetration of the vapour for tubes of the same diameter is not constant, and it probably depends on the degree of resistance offered by the bacteria; still it is hard to explain in this way the sharply-defined termination of penetration as determined by the growth of the micro-organisms. Further, for the same bacteria the vapour seems to have a greater penetrative power where the tube is inverted than where it is erect. As regards the other test objects, it will be noticed that all the bacteria exposed open to the formalin vapour were killed with the exception of the threads of yellow air coccus, which were put under a table in the very corner of the room. These latter, however, were not quite openly exposed as they were wrapped loosely in filter paper. All the threads which were protected from the vapour, as, for instance, those hung up in a coat pocket, were very slightly or not at all affected by the vapour, the only exception to this being the typhoid threads which were wrapped in paper and covered with several folds of lint.

The experiments with the sputum on cover glasses show that the vapour killed the surface bacteria, but when the surface layer had dissolved off in the bouillon, a condition easily recognised by the shaggy appearance of the smeared surface, then the bacteria in the deeper layers grew quite freely. In the case of the pus gauze, however, everything except a leptothrix was killed. All these experiments go to show that formalin, as a superficial disinfectant, is most useful, but its power of penetration is very slight. The results of a number of experimenters in Germany are quite in agreement with ours.

Dr. Gehrke, Assistant in Loeffler's Institute at Greifswald, published in the *Deut. med. Woch.*, No. 15, of last year, experiments which he conducted with Schering's lamp. He used in his experiments much stronger formalin, vaporising two grammes of trioxymethylene—that is, solid formalin pastilles—for every cubic metre. His results, however, were exactly like ours, as he found that protecting the test objects somewhat as we did was quite sufficient to prevent the gas getting at them; and, moreover, the inoculated tubes which he exposed gave exactly the same peculiar result.

Gemünd's experiments in Munich, with the same apparatus and under similar conditions, also gave results similar to Gehrke's.

Valagassa states that by using Trillat's apparatus, and developing the gas under 4 atmospheres' pressure, tubercle and diphtheria bacilli, in layers of sputum 2–3 mm. thick, are quite killed.

Petruschky exposed objects for one hour to vapour generated at 33 atmospheres, going down to two, in Trillat's apparatus, and got very good results, but failed to kill anthrax spores concealed in the toe of a boot even after leaving the gas, generated for one hour, to act for twenty-four hours after. His results with inoculated tubes were precisely the same as ours and Gehrke's.

Perhaps the most thorough experiments have been those of Elsner and Spiering, in Berlin Hygienic Institute. They tested a number of generators, but obtained far the best results with an apparatus of Schlossman's. This apparatus works by generating formalin gas, mixed with steam and also glycerine, to prevent polymerisation.

Schönfeld, of Mannheim, corroborates the experiments of the two former with Schlossman's apparatus, and he makes the interesting remark that rabbits are not affected when left in a room where formalin is being generated from a Schering's lamp, while they are killed by the glycoformal steam of Schlossman's generator.

ART. XXII.—*A Case of Meningitis, probably Tubercular, followed by Recovery.* By TH. FINDLATER ZANGGER, M.D.; late Assistant Physician, University Hospital, Zurich.

DR. LINDSAY'S report on such a case causes me to give some details of a similar case which came under my observation in 1897, during a stay at Adelboden, in the Bernese Oberland. I regret my notes are not as detailed as I could wish.

A boy of four was seen by me on August 16th, 1897, in a semi-comatose condition, with all the symptoms of cerebro-spinal meningitis; fever had persisted for eight days. The boy had been getting rapidly worse from day to day, and was brought down in a basket from an Alpine hut, some 7,000 feet high, to the village (altitude 4,600 feet).

There was dilatation of the pupils, which hardly reacted to light, a temperature of 103·5°, a pulse of 130, absolute rigidity of the muscles of the back of the neck; from time to time spastic contractions of different groups of muscles of the arms and legs showed themselves, and the patient uttered from time to time the piercing shriek, which French authors have called "cri encéphalique." No paralysis; no signs pointing to typhoid fever or heart disease. The boy was an orphan, whose father had died some years before of a "rotten lung," to use the expression of the relatives. The case seemed hopeless, but I was agreeably surprised at being mistaken. The boy slowly recovered under symptomatic medicinal treatment and application of the ice-bag to the head. After three days he became gradually more conscious, did not cry except when moved, took iced milk, had still rigidity of the muscles of the neck, a pain on movement on the 7th day, and a temperature of 103°, a pulse of 120. In a fortnight he could sit up, the fever had slowly subsided; he was still very weak. Relapse soon after, and when I left Adelboden on September 5th he was again better, with temperatures of only 102° to 101°, but persistent meningo-spinal symptoms.

Dr. Rohr saw the boy afterwards still, and reported him improving; further visits were declined by the relatives eight days afterwards as the boy was better.

My first visit to Abelboden in July, 1898, was to see my former patient. I found him running about and in fairly good health, afflicted only with a chronic flow from one ear for the last few months, for which treatment was not desired. This case seems instructive, as the diagnosis of meningitis is certain, and that of tubercular meningitis probable.

TYPHOID PARALYSIS.

Dr. N. Ritscher (*Bolnitschnaja Gaseta Botkina*, Nos. 45, 46, 1899), after reviewing the literature on the subject of paralysis occurring in the course of typhoid fever, described three cases that had come under his own observation. One of the cases presented a right-sided hemiplegia that developed on the thirty-fifth day of the disease; in the other, too, the left facial nerve was affected; in both instances the paralysis developed on the ninth day. As a result of his own observations and a careful research of the literature, he arrives at the following conclusions:—In typhoid fever paralysis of individual nerves, of entire nerve groups, paraplegias, hemiplegias, and finally general paralysis (ascending paralysis and progressive muscular atrophy), may occur. They develop either suddenly or gradually, almost always in the period of declining temperature. In the majority of cases the paralyses disappear after weeks or months, seldom remaining stationary (peripheral paralysis), or have a lethal termination (hemiplegia and ascending paralysis). They may be of functional or inflammatory origin (myositis, neuritis, myelitis, encephalitis), or result from emboli or thrombi. With the exception of emboli of the cerebral arteries, which originate from marantic cardiac thrombi, the paralyses owe their origin to the action of the typhoid toxins.—*Medical Record*, May 6th, 1899.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

General Physiology: an Outline of the Science of Life. By **Max Verworn**, M.D., Ph.D. Translated from the second German edition, and edited by **Frederic S. Lee**, Ph.D. With 285 illustrations. London: Macmillan & Co. 1899. Pp. 615.

At the head of the preface of this remarkable book the following statement stands as a sort of text:—"The elementary constituent of all living substance and the substratum of all elementary vital phenomena is the cell. Hence, if the task of physiology lies in the explanation of vital phenomena, it is evident that general physiology can be only cell-physiology." With the same sentence the work concludes, and this point of view is maintained throughout its course.

As to the class of readers for whom the volume is designed, the author says—"I wished to write something that would appeal first to my fellow-physiologists, and offer them, besides certain new facts and ideas, a summary of our scattered knowledge. But, at the same time, I wished the work to give to any interested scientific reader, whether a student of medicine, philosophy, botany or zoology, an outlook over the problems, facts, theories, and hypotheses of life; in other words, I wished to give him an introduction to general physiology, and thus afford him an idea of the important theoretical basis of his study."

In a short notice of such a work as this it will be impossible to do more than indicate the arrangement of the matter adopted by the writer; but we may say at once that the book, which has enjoyed a great success in Germany, and which has been translated, or is in course of translation, into several European languages, is one of the very highest interest and importance to everyone concerned in any way with biological study. There is no other work of just the same kind in existence. The nearest to it is Claude Bernard's "Leçons sur les phénomènes de la vie communs aux animaux et aux végétaux," published in 1878–9. A comparison of the two works will, however, show how much our knowledge has advanced, and how widely our ideas have expanded in the course of the last twenty years.

The first chapter deals with the aims and methods of physiological research. The problem of physiology is defined as the investigation of life, and some consideration is given to the ideas which we are to attach to the ideas of life and of investigation or explanation. In a brief but very interesting sketch of the history of physiological research, the subject is divided into five periods.

1. The earliest times. Here we find some ideas which sound very modern, such as the notion of the derivation of man from animal-like ancestors originally inhabiting the water, as stated by Anaximander (620 B.C.), the struggle for existence, hinted at by Heraclitus (500 B.C.). "But the theory of Empedocles (504 B.C.) upon the origin of living things is the clearest and most surprising. According to him, plants appeared first, then the lower animals, and from them the higher animals, and finally men were developed by a process of perfection. The effective principle in this perfecting process he perceived in the fact that ill-adapted individuals are destroyed in the struggle for life, while those that are capable of living produce offspring." This is very like Darwinism 2500 years before Darwin.

2. The second period is that of Galen (131–200 A.D.), who first clearly perceived the nature and significance of physiology. He first recognised the importance of anatomical study and of experiments on living animals. The long continuance of his system shows its monumental character, although, no doubt, it was largely due to the darkness of the Middle Ages.

3. The period of Harvey (1578–1657).

4. The period of Haller (1708–1777).

5. The period of Johannes Müller (1810–1858). This great man, to whose memory Professor Verworn dedicates his book, is the father of the physiology of to-day. An appreciative sketch of his work is given, and it is pointed out how

much more comprehensive and philosophical the ideas of Müller are than are those of many of his followers at the present time. There are three great discoveries of the present century which have been already very fruitful, and from the further expansion of which physiology is justified in still expecting great results. These are the law of conservation of energy, the fact that organisms are composed of cells, and the theory of descent in the organic world.

The last section of the first chapter is on the method of physiological research. This includes a discussion of the relation of psychology to physiology, vitalism and cell-physiology.

The second chapter is on living substance, and deals with the individualisation of living substance, its morphological nature, its physical properties, its chemical properties, and the difference between living and lifeless substances. The views of Bütschli on the structure of protoplasm are accepted. "Protoplasm consists of a ground mass, in many cases completely homogeneous, in most cases very finely foam-like or honeycomb-like, in which lies embedded a greater or less quantity of very various solid elements or granules. In the foam-like protoplasm the granules always lie at the corners and angles, where the foam-vacuoles come together, never in the liquid of the bubbles themselves."

While the elements which compose living and lifeless matter are the same, in the former only few elements are found and these chiefly of the lowest atomic weights. "A special vital element does not exist, but the compounds in which these elements occur are characteristic of living substance, and in great part are absent from the inorganic world." They are firstly proteids, which are the most complex compounds known, and are never absent in living substance; further, carbohydrates, fats, and simpler compounds.

The following is the concluding paragraph of this chapter:—"We can thus summarise our considerations so far, and at the same time give a simple expression to the problem of all physiology. *The life process consists in the metabolism of proteids.* If this be true, all physiological research is an experiment in this field; it consists in following the metabolism of proteids into its details, and recognising the various vital phenomena as an expression of this metabolism, which must result from it with the same inevitable necessity as the phenomena of inorganic nature result from the chemical and physical changes of inorganic bodies."

The third chapter deals with elementary vital phenomena. It is divided into three sections, the first dealing with the phenomena of metabolism, the second with the phenomena of form-change, including heredity, adaptation, cell division, and fertilisation, and the third with the phenomena of the transformation of energy.

The fourth chapter is on the general conditions of life. It also is subdivided into three sections. The first is on the present conditions, external and internal, of life upon the earth's surface. This highly suggestive section concludes as follows:—"A physical phenomenon takes place when, on the one hand, a material substratum is present in which it can take place, and, on the other, certain external conditions are fulfilled. The same holds good of vital phenomena. Vital phenomena appear with the same necessity that characterises the appearance of physical phenomena; when matter capable of life is present, and when the external general and special conditions of life are fulfilled. In other words, vital phenomena are an expression of the correlation of living substance and the surrounding medium."

This idea is still further developed in the second section on the origin of life upon the earth. The unsatisfactory nature of all previous theories on this subject is shown in a critical review, and the author draws thus his final conclusions:—"The fact stands out clearly and distinctly that life, from its beginning on, has been dependent upon the external conditions of the earth's surface. In a mathematical sense, life is a function of the earth's development. Living substance could not exist while the earth was a molten sphere without a solid, cool crust; it was obliged to appear with the same inevitable necessity as a chemical combination when the necessary conditions were given, and it was obliged to change its form and its composition in the same measure as the external conditions of life changed in the course of the earth's development. It is only a portion of the earth's matter. The combination of this matter into living substance was as much the necessary product of the earth's development as was the origin of water. It was an inevitable result of the progressive cooling of the masses that formed the earth's crust. Likewise, the chemical, physical, and morphological characteristics of existing living substance are the necessary result of the influence of the external conditions of life upon the internal relations of past living substance. Internal and external vital conditions are inseparably correlated, and the expression of this correlation is life."

The third section is on the history of death. It is pointed out that there is no sharp limit separating life and death, but rather a gradual transition between them—that death undergoes development. An interesting description is given of the phenomena of necrobiosis, or "those processes that, beginning with an incurable lesion of the normal life, lead slowly or rapidly to unavoidable death." More particularly we would call attention to the description of what is termed granular disintegration. The view of Weismann on the physical immortality of unicellular organisms, which distinguishes them from mortal multicellular organisms, is critically considered and shown to be untenable. In conclusion it is shown that, while we are so ignorant of the composition of living substance, any attempt to produce life artificially must be futile. "For the present the task of physiology can consist only in the investigation of life. When physiology shall actually have accomplished this, it may think of testing the completeness and correctness of its achievement by the artificial inauguration of life."

Our limits forbid us to give any extracts from the fifth and sixth chapters, which deal respectively with stimuli and their action, and the mechanism of life. But we would, however, call attention to the interesting original observations of the author on the reaction of unicellular organisms to electrical and other stimuli detailed in the fifth chapter, and to the reasoning by which all the mechanics of the cell are derived from the metabolism of its substance, as given in the last chapter. It is shown in the successive chapters how the changes of form and energy are inseparably connected with the change of substance, and while much remains unexplained, and many hypotheses are still necessary, "cell physiology, aided by the stern necessity of its development and its great working power, is beginning to give encouragement to the highest expectations."

This truly remarkable work cannot fail to mark an epoch in scientific literature. The views and arguments formulated in it, and the gradual development of the human mind which has made them possible, are among not the least of the achievements of the century now coming to a close. The book is one not only for the professional physiologist, but for everyone interested in science, or whose culture is sufficient to make him ask what he is, how he came here, or whither he is going. As such it must exercise a widely-spread and important influence. The translation must have been a work of great difficulty, but it has been pre-eminently successful. Professor Lee has given us an English version, which in every page is delightful and fascinating reading, and by this has ensured a greatly extended circle of readers and a more widely-spread influence for the book. The work is one which we cannot too highly recommend to the attention of every cultured man, and more particularly to those who, like our readers, spend their lives in the study of the phenomena of life and death.

Ovariotomy and Abdominal Surgery. By HARRISON CRIPPS, F.R.C.S.; Operator for Abdominal Sections to the Ward for Diseases of Women in St. Bartholomew's Hospital. London: J. & A. Churchill. 1898. 8vo. Pp. 624.

WE are at a total loss to understand how this work can be considered to have Mr. Harrison Cripps for its author, for by far the most valuable portions of it have come from the pens of others, while not a little of that which is accredited to Mr. Cripps is already familiar to those who are in possession of his former writings.

Mr. H. J. Waring is to be congratulated for his excellently illustrated and descriptive chapter on the Anatomy of the Abdomen; the Surgery of the Kidney is from the pen of Mr Bruce Clarke, and will repay our readers' close perusal; while to Mr. C. B. Lockwood has been entrusted the chapter dealing with Radical Cure of Hernia, which is excellent so far as it goes.

It is, however, towards Mr. Cripps' portion of the work that we feel compelled to direct a certain amount of criticism, for we look upon it as altogether below the standard that should be expected from the writings of a gentleman holding his high hospital appointments. "I have" (he says) "been so frequently asked during the last few years by old pupils as to the best methods of fitting up an operating theatre in accordance with modern views, that I have described in some detail what has been done with this object in building and furnishing the special theatre attached to the woman's ward at St. Bartholomew's."

It will be perceived that the "best methods" of theatre construction had been asked for, and why then should a full description of "the Martha theatre" be afforded unless the author was fully satisfied with its perfection. The window of this theatre faces the south, a most objectionable aspect from an operator's standpoint, in consequence of the great variability of light and heat, and the dark contrast shadows which accompany sunbeams. A northern light is much to be preferred, as it is free from the above objections. There is a fire-place in Martha's theatre, and this of itself is enough to condemn the whole structure, as it offers an absolute barrier to a still atmosphere so greatly to be sought after when performing an aseptic operation. The wash-hand basins in Martha's theatre are highly praised, but apart altogether from the objection to having basins for preliminary disinfection in the theatre proper at all, the ones described are far from according with modern requirements; and the "tilt-up basin," which works on a pivot, and can be removed altogether for cleansing purposes, are, we think, vastly to be preferred; moreover, the water flowing into the basin is controlled by ordinary finger taps instead of the more cleanly feet levers.

Marine sponges are still employed by Mr. Cripps in abdominal sections, and as he does not use these a second time we must arrive at the conclusion that he believes new sponges to be aseptic, nor does he know of any reliable method of rendering a septic sponge clean. Surely this childlike faith in the cleanliness of a newly purchased sponge is not in accordance with known facts.

If there is one position more important than another in which to place a patient while performing many abdominal operations, it is that of the Trendelenberg, and yet in Fig. 41 this is portrayed in a most incorrect manner, the pelvic elevation not being nearly great enough.

The author in his preface intimates that the object of this book is to record only such details as he himself has found of use. Apparently his experience has not been sufficient to furnish anything but an imperfect index of abdominal surgery. Let us take for example abdominal hysterectomy; extra-peritoneal and sub-peritoneal operations are described and contrasted as though they alone constituted the entire means at the disposal of modern surgery for the removal of myomata. The former is now an operation of the past, nor is there any one point that can be urged in its favour at present, while the latter, sub-peritoneal operation, when performed now, is carried out by methods far in advance of those advocated by the author, as, for instance, the "Kelly operation."

It is, however, probable that panhysterectomy is the operation that will find increasing favour in the future, if it is not already the procedure most constantly carried out nowadays, and yet it appears to have been only on one occasion performed by Mr. Cripps, and this quite unintentionally; neither does it receive any special description.

We now turn to the section dealing with inguinal colotomy, to see whether later experience has modified the author's views as to the advantages of this operation. We find him as great an enthusiast as ever, and so fond of the operation that he himself has performed it in over 300 cases. He refuses to discuss general statistics, and holds that the experience of individual operators of known skill will alone furnish a reliable index as to the usefulness of the operation.

We are told that his own special operation is one of great nicety, and he has seen "the patient deprived of all the advantages of the operation by its ill performance from want of care or skill on the part of the operator."

To show us how likely his statistics are to be considered reliable, we read that he "had an opportunity of following many of these cases to the end," and "he has no hesitation in saying that the relief obtained, and the suffering avoided, are unmistakable." He again, however, warns his readers that colotomy is an operation of great delicacy, "requiring a good anatomical knowledge, with trained manipulative skill."

The writer has seen Mr. Cripps perform the operation of inguinal colotomy. The asepsis and *technique* may be matters as to which individual opinion may differ; but having watched the case in its subsequent stages, we think that it goes far to justify the opinion expressed by Dr. Gross—namely, "that the operations hould be discarded as amongst the obsolete devices of surgery." It is a circumstance also worthy of remark that Mr. Cripps in this instance made no effort to follow up the after-course of the case, which he could easily have done had he so desired, and this, to say the least of it, is surprising in view of the importance he attaches to personal statistics.

Annual and Analytical Cyclopædia of Practical Medicine. By CHARLES E. DE M. SAJOUS, M.D., and One Hundred Associate Editors. Vol. III. Philadelphia, New York, Chicago: The F. A. Davis Publishing Company. 1899. 8vo. Pp. 600.

THE third volume of this enterprising work follows the plan of its predecessors, and carries us in alphabetical order of subjects from "Dislocations" to "Myxœdema," inclusive.

Amongst the most striking articles in this volume are memoirs on "Dislocations and Fractures," by Professor Stimson and Dr. Keyes, junr., of New York; "Hip-joint Disease," by Dr. Reginald H. Sayre, of the same city; "Dysentery," by Dr. Flexner, of Baltimore; "Endometritis," by Professor Byford, of Chicago; "Infantile Myxœdema (Cretinism)," by Professor Osler and Dr. Norton, of Baltimore; "Exophthalmic Goitre," by Professor Putnam, of

Boston; "Goitre," by Professor Adami, of Montreal; "Gout," by Dr. Levison, of Copenhagen; "Eczema," by Professor Stelwagon, of Philadelphia; and an analytical study of "Hysteria" and "Hypnotism," by Professor Eskridge, of Denver.

Traumatic Separation of the Epiphyses. By JOHN POLAND, F.R.C.S. London: Smith, Elder & Co. 1898. 8vo. Pp. 926.

Skiagraphic Atlas showing the Development of the Bones of the Wrist and Hand, for the use of Students and others. By JOHN POLAND, F.R.C.S. London: Smith, Elder & Co. 1898. Royal 8vo.

MR. POLAND'S book on Traumatic Separation of the Epiphyses is the most complete work on this subject which has been given to the surgical profession. It is well that the author has issued separately the Skiagraphic Atlas of the Development of the Bones of the Wrist and Hand for the use of Students, for the size and cost of the complete work will, we fear, prevent its free use by the student; its size indeed renders it a book of reference rather than a text-book for the surgeon, who, however, will be grateful for its completeness and exhaustive character. We doubt if there be a single authentic case recorded that the author omits, and of the more important he quotes the descriptions verbatim. It is this exactness and completeness which has swollen the volume to 926 pages. The numerous (337) illustrations are, almost without exception, excellent. The skiagraphs, which represent the development of the wrist and hand, and are repeated in the Atlas, are very interesting, were it not that they bear too clear evidence of being touched up. There is a sharpness of the contours of the ossifying centres which suggests this. In our opinion a skiagraph should be published as it appears, without any interference. In the skiagraphs of the lesions of the superior epiphysis of the femur we see this—what we may call—tampering with the pictures most evident. Indeed, in one or two of these almost impossible forms are given to the bones; for example, in the representation of the neck of the femur of "a lad aged twenty-one." Pictures such as these are very poor value and disfigure the book. The engravings inserted in the text are throughout excellent.

The fulness of the treatment of each epiphyseal lesion may be illustrated by the examination of a particular instance. To the separation of the upper epiphysis of the humerus one hundred and ninety-eight pages are devoted, with thirty-four illustrations; that this development of the subject of this chapter is not excessive is proved by the frequency of the errors of diagnosis which are so constantly occurring. On this point the author says:—

"In a large proportion of the cases described above a diagnosis of dislocation was at first made. Jetter says that out of seven cases operated on for deformity and loss of function of the arm after union had taken place, the displacement had, on five occasions, been diagnosed as a dislocation, and attempts at reduction had been made by the medical attendant.

"As late as June, 1893, we find (according to Lejars) a case being mistaken at one of the French hospitals, and vain attempts made at reduction by Kocher's method.

"Dr. J. F. Erdmann, of New York, mentions (*New York Medical Record*, October 26, 1895, p. 586) the case of a boy (M. M'G.) aged sixteen, who had fallen upon his shoulder six weeks before. He had been an inmate of one of the large New York hospitals, and was being treated for a subcoracoid dislocation of the humerus. There was no swelling, but marked flattening of the shoulder, broadening from before backwards, and 1¼ inch shortening. A slightly convex deformity, continuous with the shaft, with the bicipital groove well marked upon it, was found beneath the acromion, and downwards and in front, practically sub-coracoid, a round, fairly-moveable mass was felt. A diagnosis of epiphyseal separation was then made and operative treatment recommended, but refused. The author has seen the same mistakes made at the hospitals in London."

When, then, these mistakes are so common all the world over, and at the great seats of surgical teaching, we need not complain of our author devoting so many pages and illustrations in the hope of teaching the surgical profession the diagnosis of separation of the upper epiphysis of the humerus.

An examination of any other particular instance gives very much the same result. Lastly, each epiphyseal study is made very practical and complete by the discussion and illustration of the best mode of treatment. We can, therefore, commend this book with all confidence to the profession.

The Royal University of Ireland. The Calendar for the Year 1899. Dublin: Alex. Thom & Co. 1899. 8vo. Pp. 463.

The Calendar contains the usual information relative to the University and its several faculties. Changes in the courses and in the regulations for 1900 will be found at page 195, and should be consulted by all intending candidates. In October, 1900, one medical studentship, tenable for two consecutive years, of the annual value of £200, will be offered for competition among the Graduates in Medicine of the University. The subjects for examination will be Pathology and Bacteriology.

Burdett's Official Nursing Directory, 1899. Containing an outline of the Principal Laws affecting Nurses; particulars of Nurse Training Schools in the United Kingdom and Abroad; Nursing Institutions, &c., and a Directory of Nurses. Compiled and Edited, with the assistance of a small Committee of Medical Men and Matrons, by Sir Henry Burdett, K.C.B. London: The Scientific Press. 8vo. Pp. 672.

The nursing world is much indebted to Sir Henry Burdett, and we are glad to see an increase in the number of nurses' names in his Directory this year. We, however, look in vain for many Irish names well and honourably known to us, and we would urge upon all the duty of responding to the request of the editor, by filling in the forms which are sent to them. Under the heading of "Institutions Managed by a Committee," we regret to find that the notice of "The St. Patrick's Nurses' Home for supplying Trained Nurses to the Sick Poor," which appeared last year, has been obliterated. This needs some explanation. An institution established 23 years ago, and supporting a *permanent* staff of eight nurses, claims individual notice.

PART III.

SPECIAL REPORTS.

REPORT ON PUBLIC HEALTH.[a]

By Sir Charles A. Cameron, C.B., M.D.; D.P.H., Camb.; M. and Hon. F.R.C.P.I.; F.R.C.S.I.; F.I.C.; Ex-President, Hon. Dip. Public Health, and Professor of Hygiene and Chemistry, R.C.S.I.; Vice-President and Ex-President of the Royal Institute of Public Health, and of the Society of Public Analysts; Medical Officer of Health for Dublin; Hon. Member of the Hygienic Societies of France, Belgium, Paris, and Bordeaux, the Academy of Medicine, Sweden, and of the State Medical Society of California, &c.; Examiner in Sanitary Science, Royal University of Ireland; Member of the Army Sanitary Committee.

MIDDENS AND TYPHOID FEVER.

I have shown in previous reports that the evidence in favour of the water carriage system of filth removal, as against the storage in privies and middens plan, is overwhelming and conclusive. It is evident that the retention for months of human excreta in close contiguity of dwellings must necessarily have a pernicious effect on the atmosphere, and, in most cases, owing to pervious floors of privies and middens, on the soil too. Some years ago the tenement houses of Dublin were dependent solely on privies for their sanitary accommodation, but these objectionable Altars to Cloacina have nearly altogether been got rid of, and water closets substituted for them. In a large number of cases the substitution of water closets for privies was made by order of the police magistrates, at the suit of the Sanitary Authority, and it is remarkable that in no instance did the magistrate refuse to make such an order.

In Belfast the attempt of the Sanitary Authority to enforce the substitution of water closets for privies has not been successful, the magistrates generally refusing to make the required order.

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[a] The author of this Report will be glad to receive any books, pamphlets, or papers relating to hygiene, dietetics, &c. They may be forwarded through the agencies of the Journal.

However, I am glad to be able to state that in a Belfast Improvement Bill now before Parliament, the Committee of the House, to whom the Bill was committed, approved a clause in it referring to privies. There are about 27,000 of these structures in Belfast, and nearly all of them are so situated that their contents have to be removed through the walls, and in many instances through rooms into the street. A clause in the Belfast Bill approved by the Committee of the Commons on the 12th of May last, enables the Sanitary Authority to enforce the substitution of water closets for privies. It also enables the sanitary authority to lend money to the owners of premises required to convert privies into water closets.

The Sanitary Authority of Eccles (near Manchester) last year obtained an order from a Court of Summary Jurisdiction for the substitution of water closets and of ash-bins or pits for midden privies. It was proved in evidence that the privies were infected with the dejections of enteric fever patients, and that nothing short of their abolition would ensure the destruction of the virus of the disease. An appeal to the Court of Quarter Sessions resulted in the confirmation of the decision of the lower court. The case was then carried to the Divisional Court of the Queen's Bench on a point of law. The court, consisting of the Lord Chief Justice and Mr. Justice Wills, reversed the finding of the two lower courts. The Town Clerk of Eccles, who was present at the final hearing of the case, stated to his Sanitary Committee that the following were the grounds of the judgment:—

"1. That the local authority having undertaken the duty of cleansing the privies in the borough, and not having so cleansed the privies in question as to render them free from infection by the typhoid bacilli which were proved to have existed therein, were responsible for the nuisance caused in that respect. (The owner having acquired the premises some time after the occurrence of the first case of typhoid fever, without notice of its existence, could not be held to be responsible.)

"2. That there being no evidence in the statement of the case by the Court of Quarter Sessions that the structures were different from those ordinarily in use and allowed by the Public Health Acts, structural alterations did not appear to the court to be necessary or proper to abate the nuisance.

"3. That the court was of opinion that no power was vested in the local authority to require the provision of water closets in substitution for the privy middens, even though they were defective in structure, and in this case caused a nuisance to arise which might continue after the defects in the said structures had been remedied."

In Dublin it has been the practice to proceed in reference to privies as if they were ordinary nuisances. That water closets should replace them is merely a suggestion. Perhaps if the Eccles authorities had served a notice to abate the nuisance created by the pestiferous privies, and not served a notice requiring their replacement by water closets, the Queen's Bench might have taken a different view of the case. As the matter stands it is a very serious one. As the law is interpreted by the two eminent judges above-named, the Sanitary Authorities cannot compel the owners of privies to replace them by water closets; nor can they do so at the expense of the Sanitary Authority except with the consent of the owner. Surely legislation on this matter is wanted. In the next General Sanitary Act it is to be hoped that power will be given to the Sanitary Authorities to prescribe the manner in which the filth of towns is to be disposed of.

THE STERILISATION OF WATER BY FILTRATION.

The "Transactions of the British Institute of Preventive Medicine" contains an interesting and elaborate paper by Mr. Joseph Hunt, B.Sc., on the above subject. The object of the research, which was conducted in the laboratory of the Institute, was to confirm or reverse the inferences derived from the results of Dr. Hans Schoefer's, of Vienna, and other investigator's experiments on the Berkefeld filter. For this filter has been claimed the power of intercepting pathogenic bacteria, especially typhoid bacilli, even when ordinary water bacteria pass through.

Mr. Hunt's experiments were made under the following heads:—

1. Does the Berkefeld filter when freshly sterilised give a filtrate which is *absolutely* sterile?

2. Provided the filtrate is absolutely sterile on commencing to use a freshly sterilised filter, for how long does the filter continue to yield such a sterile filtrate?

3. Does the Berkefeld filter show any differential action on pathogenic organisms as against the numerous harmless water bacteria which are normally present in drinking-water?

4. Are the various methods at present employed in using the Berkefeld filter equally efficacious; if not, which is the best method?

5. Can any practical recommendations be made as to the best mode of using, and as to the requisite frequency of cleaning and

sterilising the filter in order that it shall be an efficient safeguard against water-borne disease ?

The experiments seem to have been conducted in a most careful and scientific manner, and the conclusions at which the author arrived are as follow :—

"1. A large number of experiments have shown that when the filters are efficiently sterilised and the filtered water protected from all sources of contamination, they give on the first day of using an absolutely sterile filtrate when used in an approved manner.

"This is the case with all the forms of filtering candles examined, not only with natural water but also with water artificially infected with enormous numbers of bacteria from cultures, and also with broth cultures teeming with bacilli.

"In each case not a single bacillus could be detected in the filtered water from the freshly sterilised filters when proper precautions were taken in using them.

"2. Although the filter gives an absolutely sterile filtrate when used as above stated, it is necessary if such a sterile filtrate is desired continuously to re-sterilise the filter daily; for bacteria begin to appear in the filtrate in very small numbers on the second or third day of using. These bacilli are mainly, if not entirely, water bacteria.

"For all domestic purposes, however, the experiments show that unless there are special circumstances which make such a precaution necessary, a thorough cleansing and sterilisation need only be performed twice or even once a week.

"3. A long series of experiments, in which London tap-water was strongly infected with *Bacillus coli communis*, showed that this organism could not be detected in the filtered water over a period of thirty-nine days.

"The method used in searching for this organism in the filtered water never failed to detect it in the unfiltered water or the bacterial coating on the outside of the filter. During this period *Bacillus coli communis* was so detected on the outside of the filtering candle on the thirty-ninth day.

"In these experiments water bacteria could, however, be detected in the filtered water on the fifth day of using the filter, although they were present in exceedingly small numbers.

"4. Exhaustive experiments showed that with London tap-water strongly infected artificially with the typhoid bacillus not a single typhoid bacillus was detected in the filtered water over a period of twenty-six days, though detected in the unfiltered water up to the sixth day.

"As is well known typhoid bacilli ultimately perish in water which contains the water bacteria which are always present in natural water, but during the whole time in which they were demonstrated to be alive in the unfiltered water, they were never once detected in the water which had passed through the filter.

"5. London tap-water strongly infected artificially with the cholera bacillus was found after filtration through the filter to be absolutely sterile and, therefore, entirely free from the cholera organism.

"6. A long series of experiments with the travellers' 'N' filter have shown conclusively that the method of using these filters with a combined suction and force-pump, causing as it does sudden and violent changes of pressure on the outside of the filter, is one which gives very bad results with filtering candles, which give an absolutely sterile filtrate when used by a better method.

"The principle of the 'R' filters intended for travellers, in which atmospheric pressure forces the filtered water into an exhausted receiver, is one which is free from the above objection, and when used by this method absolutely sterile filtrates are obtained even when identically the same filtering candles are used which previously passed large numbers of bacteria from the very first, when used by the 'N' or suction and force-pump method.

"7. Seeing that the bacteria which first appear in the filtered water are harmless water bacteria, and that such organisms as *Bacillus coli communis* and the typhoid bacillus do not accompany them, even when they are present in large numbers in the unfiltered water, it seems that in all cases in which a drinking water is not under the suspicion of being contaminated, a semi-weekly or weekly cleansing and sterilisation of the filtering candle is all that is necessary as a precautionary measure against water-borne disease.

"Nevertheless, in all cases of contaminated water supplies or supplies known to be infected with disease organisms, a daily sterilisation of the filtering candle is advisable, thus ensuring an absolutely sterile filtrate.

"As an additional precautionary measure in cases of epidemic outbreaks, all possibility of harm from any chance defect in the working of a filter should be guarded against by boiling even the filtered water when used for drinking purposes.

"Wherever a daily sterilisation of the filtering candle is resorted to, it is advisable to have two candles, one of which can be cleaned and sterilised whilst the other is in use, in order that a clean and sterile filtering candle shall be available for use immediately a used one is removed.

"The volume of water required should be procured slowly at a minimum pressure and stored in a suitable manner, by which means the filter works more efficiently, rather than by the use of high pressures and a more rapid flow for a shorter period."

THE RELATIVE IMPORTANCE OF FLIES AND WATER SUPPLY IN SPREADING DISEASE.

Dr. M. A. Veeder, of Lyons, New York, read a paper on the above subject at a meeting of the Buffalo Sanitary Club, held on the 14th December, 1898. He pointed out that in the late war in Cuba the attempt to prevent the spread of diseases of the intestinal class by the use of the purest water or water purified by boiling was a failure. Of course, the failure was not due to the use of pure water, but from the circumstance of concluding that if the water was pure no other source of disease need be looked for. The author shows that it was not until late in the summer that it was discovered how potent for mischief were the flies—that they were the vehicles of contagion. During the recent campaign in the Soudan the influence of flies in spreading disease was observed.

Dr. Veeder remarks :—

"It is not to be denied that there are dangers in connection with water supply, but they are not the only or the chief ones in the case of encampments. To illustrate, the writer has seen fæcal matter in shallow trenches open to the air, with the merest apology for disinfection and only lightly covered with earth at intervals of a day or two. In sultry weather this material, fresh from the bowel and in its most dangerous condition, was covered with myriads of flies, and at a short distance there was a tent, equally open to the air, for dining and cooking. To say that the flies were busy travelling back and forth between these two places is putting it mildly. I presume that in the very case just mentioned, a microscope would have revealed fly tracks of more or less fresh excrement across the meat and bread and sugar and in the milk pitcher and water jar; the excrement so deposited doubtless contained the colon bacillus and the typhoid bacillus, as well as other varieties less harmful. Even in a private house, not at all uncleanly, I have seen typhoid dejections emptied from a commode, and the latter thoughtlessly left standing without disinfection within a few feet of a pitcher of milk just left at the door, both the commode and the pitcher attracting the flies, which swarmed about and went from the one to the other. Is it strange that there were numerous cases of the disease in that house and others in the house next to it?

I have seen a shallow old-fashioned water closet fairly buzzing with flies on a hot day, and all around it open windows and doors leading into kitchens and pantries and dining-rooms. A single case of typhoid would start a severe local epidemic under such conditions. Indeed, such observations have been made only too frequently. In encampments it is the common thing.

"To clinch the argument, and apparently leave no loophole for escape, I have made cultures of bacteria from fly-tracks and from the excrement of flies, and there seems to be not the slightest difficulty in so doing. Indeed, the evidence of every sort is so clear that I have about reached the conclusion that the conveyance of infection in the manner indicated is the chief factor in decimating the army. Certainly, so far as is known to the writer, nothing adequate has been said about it in current discussions. On the contrary, there have been intimations of the existence of ideas that are positively dangerous, if what has been here said is true. There is no doubt that air and sunlight kill infection if given time, but their very access gives opportunity for the flies to do serious mischief as conveyors of fresh infection wherever they put their feet. In a very few minutes they may load themselves with the dejections from a typhoid or dysenteric patient, not as yet sick enough to be in the hospital or under observation, and carry the poison so taken up into the very midst of the food and water ready for use at the next meal. There is no long, roundabout process involved. It is very plain and direct, and yet when thousands of lives are at stake in this way the danger passes unnoticed, and the consequences are disastrous and seem mysterious until attention is directed to the point; then it becomes simple enough in all conscience.

"As regards the precautions to be taken, it is not necessary to enter into detail. Personally the writer has insisted that disinfecting solutions, preferably that of blue vitriol, be kept constantly in chamber utensils, so that all infection may be at once destroyed where there is typhoid or dysentery. The use of this same solution in water closets generally is found to be very satisfactory, destroying all smell and causing the flies to cease their visits. Other measures will readily suggest themselves. The important point is that the danger be fully and adequately recognised."

OYSTER FEVER.

The *Practitioner* for March, 1899, contains an interesting paper on "Oyster Fever," by John William Moore, M.D., President of the Royal College of Physicians of Ireland.

It is now a well-established fact that enteric fever is occasionally caused by the ingestion of raw oysters, taken from beds polluted with sewage. The first paper on this subject was contributed by me to the number of the *Dublin Journal of Medical Science* for September, 1890. It was not, however, until several years later that general attention was given to the possibility of the conveyance of the virus of enteric fever by oysters; and now quite an extensive literature exists on this subject.

Dr. Moore in his paper recognises not only the danger to which the consumers of raw oysters are exposed if the molluscs come from filthy foreshores containing typhoid bacilli, but believes that two diseases beside enteric fever may be caused by the ingestion of unwholesome oysters. They may cause, first, acute gastro-enteric catarrh, or, secondly, a specific continued fever, probably due to ptomaïn poisoning.

Dr. Moore says that within a few hours after unwholesome oysters are eaten symptoms resembling those of cholera nostras present themselves; there are vomiting, purging, nausea, and intense thirst. He is inclined to believe that in the first instance the irritation is localised in the stomach rather than in the brain—that is, that the poison acts locally on the mucous membrane of the digestive canal.

As regards the continued fever produced by unwholesome oysters, Dr. Moore agrees with Dr. Sidney Martin that cases of food-poisoning are caused by poisonous albumoses formed from proteids during their earlier states of putrefaction. Even when the food eaten is not putrid it may contain pathogenetic micro-organisms, which set up toxic action and produce disease characterised by a period of incubation. Such cases may terminate fatally.

Dr. Moore narrates the following cases of what he terms *ostreotoxismus* (ὄστρεον, an oyster):—

"On Monday, September 28th, 1896, I was called to see, in consultation, Miss M. G., aged 30. She was fast sinking with symptoms of heart-failure supervening on peritonitis. Her history was that one evening early in September her uncle and she had supped on oysters. Both were seized with cramps, vomiting, and diarrhœa during the ensuing night. Her uncle quickly recovered, but she was never well again, pyrexial symptoms developing in the course of a few days. Even from the outset she was extremely prostrate, and suffered from profound depression of spirits. So far as I could ascertain, the illness was by no means a typical typhoid fever, and the lady's attendant physician was at a loss to give a name to it, so anomalous were its symptoms and course.

"On the 20th of the same month (September, 1896) I had been called to see a physician living some miles from Dublin, who had been ailing, off and on, for a fortnight or so previously. His symptoms were—loss of appetite, occasional nausea, and recurring diarrhœa. He had been more acutely ill since the 17th, three days before my visit. I found his liver and spleen enlarged, his pulse varied from 92, at 11 15 a.m., to 96, at 8 15 p.m., but his temperature rose only from 100·2° to 100·5° in the same interval. His tongue was thickly coated and his breath was exceedingly heavy and offensive. His story was that on Tuesday, September 1st, he had eaten a dozen of oysters, shortly after which he was attacked with vomiting and purging. This gentleman remained feverish for a week or ten days, and was as prostrate as if he had had influenza. His temperature chart was quite atypical. He was constipated, and the presence of some rose-spots with moderate splenic enlargement alone pointed to typhoid as the malady from which he suffered.

"I will now briefly describe a case in which all three phases of oyster-poisoning, as I have defined them above, presented themselves in succession.

"On Thursday, September 29th, 1898, Captain E., aged about 36, stationed with his regiment in a cavalry barracks in Dublin, dined at regimental mess, the occasion being a special guest night. One of the courses consisted of uncooked oysters, taken from a barrel which had been brought to Dublin from Essex. Before morning he and many other brother-officers and their guests were attacked with acute gastro-enteric disturbance. Most of the victims recovered after two or three days' *malaise*. Not so Captain E. and a few others. Captain E., for example, developed an anomalous continued fever, lasting for a week or ten days. On the eighth day from infection, that is, on Thursday, October 6th, I visited Captain E., with Dr. R. A. C. Burnes: The chief symptoms were—bad taste in the mouth, foul tongue, thirst, and sleeplessness. The bowels were confined, spleen slightly enlarged, no rose-spots. Captain E. quickly improved, and in a few days was up and out. But this satisfactory state of things was not to last. After some days of apyrexia, the patient began to ail again, and gradually passed into an attack of fully developed typhoid fever, which lasted nearly four weeks. I saw him, in consultation, on the 6th, 8th. 10th, 13th, and 31st days of this attack, which was certainly one of typhoid fever of ordinary severity, but without complications. In this view Dr. Burnes and Major Goggin, R.A.M.C., who saw him subsequently, entirely concurred.

"It was stated to me that two of Captain E.'s brother-officers developed true typhoid fever, and that one of them was attended in London by Sir William Broadbent, Bart., F.R.S., during his illness, which was of a severe type.

"My reading, then, of Captain E.'s case is that the first attack of acute gastro-enteric irritation failed to eliminate two poisons with which the unsound oysters were charged; that one of these poisons produced an albumose, or ptomaïn-fever; and that, towards the end of the third week from infection, the more slowly acting poison of typhoid fever produced the characteristic features of that disease."

LITERARY NOTES.

MESSRS. CASSELL & COMPANY, LIMITED, announce the early publication of a new text book on orthopædic surgery by Mr. Jackson Clarke. The work is to consist of about 500 demy octavo pages, and will be fully illustrated. Besides furnishing a text book on the subject, it has been the author's aim to embody the many advances, including the Röntgen-ray process, that have been recently made in the department of surgery with which it deals. A special feature of the book is to be an exposition of the pathology of deformities as a basis of orthopædic surgery.

BIRTH OF FŒTUS PER VIAS NATURALES IN A CASE OF EXTRA-UTERINE PREGNANCY.

MALINONSKI (*Medizinskoe Obotsrenyoe*, 1898; *Obstetrics*, April, 1899) reports this case as occurring in a woman, aged thirty-eight years, a multipara. During labour abdominal palpation revealed one tumour, corresponding to the uterus, with a second smaller one attached to the former and on the right side. Pains becoming inefficient, forceps were applied, but were unsuccessful. Craniotomy was then performed and the child was removed, but the smaller tumour did not disappear. The operator's hand was then introduced into the empty uterus, and thence to the right Fallopian tube, where the placenta was found and removed. The woman made a good recovery.—*New York Medical Journal*, May 6th, 1899.

PART IV.

MEDICAL MISCELLANY.

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Reports, Transactions, and Scientific Intelligence.

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Hypnotism as a Therapeutic Agent[*]. By LEWIS MORE O'FERRALL.

HYPNOTISM in one form or another has been known to mankind from the very earliest times, and we have accounts dating back to nearly 2,000 years B.C., stating how the priests and soothsayers of the ancients put the infirm into a kind of hypnotic sleep and effected strange cures by magnetic influences. The loadstone or natural magnet was also largely used by our forefathers as a therapeutic agent, and one of the oldest Greek authors, Ætius by name, tells us that if held in the hand it is an infallible cure for gout. Nevertheless animal magnetism, or hypnotism, to use a more modern term, began to be scientifically investigated only in the time of Dr. Anton Mesmer, a German physician, who lived during the 18th century, and he it was who first employed it in anything like a scientific manner in medicine.

Mesmer was born May 23rd, 1733, at Weil, a small village near the point where the Rhine leaves Lake Constance, and was educated and studied medicine in Vienna. Very shortly after being qualified he went to Switzerland, and there met a very curious case of hysteria in a young woman. After the trial of various remedies without success, it struck Mesmer that perhaps magnetism might prove of some service. He accordingly consulted with a certain Fr. Hell, then Astronomer Royal in Switzerland, and obtained from him the necessary magnets. (By this time 18th century artificial magnets had superseded the old mineral magnets, as being more powerful, more portable, and more convenient of application.) Armed with his magnets Mesmer again visited his hysterical patient, and applied them to her. The effect was magical. After a single application she was greatly improved, and after repeated applications she got practically quite well.

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[*] Read before the Catholic University Medical School Medical and Scientific Society, on March 27, 1899.

Mesmer was delighted at his success, but his joy was soon turned to chagrin when Fr. Hell gave out that the cure was entirely due to his magnets, and in no wise due to Mesmer, and when people began consulting Fr. Hell instead of himself to get cured.

Mesmer was the more annoyed because he was quite convinced that the cure was not due to Fr. Hell's magnets, but to some magnetic influence in his own person, which influence was merely aided by the presence of strong magnets. He was the more inclined to hold this view from the fact that he believed that while bleeding a patient the blood-stream varied according as he, Mesmer, approached or withdrew from the patient, even when no magnets were present. He considered that this was due to the fact that he in his own person possessed a magnetic influence greater than most other men, and that this influence on the blood-stream of his patient caused it to flow more or less rapidly, according as he was near to or far from him.

Now it so happened that Mesmer about this time made the acquaintance of a certain Roman Catholic priest, Gassner by name, whom he found was able to work cures without any magnets. Fr. Gassner declared that all diseases were really possession by devils, and that one individual might be possessed by millions of these devils at the same time, and he put down his hypnotic cures to the effects of religious influences upon these devils. If Fr. Gassner had substituted the word "microbe" for "devil" he would not have fallen far short of our modern ideas of disease.

Mesmer, however, who was exceedingly jealous of Fr. Hell, on seeing the cures worked by Gassner, gave out openly that artificial magnets were in no wise needed to work his magnetic cures, and he declared that he himself could work without them by means of his own personal magnetic influence. He found he was successful, and so in the year 1778 he travelled to Paris to noise his discovery abroad.

He did not from this time quite discard the use of magnets, but he used them merely to impress his patients the more, and to heighten the effect of other devices. In fact Mesmer, who it must be remembered was a physician as well as a hypnotist, was cunning enough not to rely upon hypnotism or magnetism alone in effecting all his cures. We are told, indeed, one rather amusing story about him which will show us how far Mesmer really relied on magnetism in certain cases. He had been called in to see a patient suffering from pleurisy with the object of curing the patient by magnetism. Mesmer managed on some pretext to send away for a time the other doctor who was in attendance on the case, and in his absence Dr. Mesmer bled and blistered the patient, and then ascribed the whole cure of the case to magnetism.

Dr. Haygarth, of Bath, about this time—*i.e.*, the year 1779—performed some very interesting experiments. He had some false magnets made out of wood and metal, exactly like the real magnets, and then without letting his patients into the secret he employed these false ones in the same manner as the real ones had been employed. He found that he produced exactly similar results in all his patients, which clearly proved that the effects produced were in no wise due to magnetic influence, but rather to the imagination of the person experimented on.

Mesmer at the same time in Paris, although professing to believe that he worked by means of a force emanating from himself, nevertheless worked powerfully upon the imagination of his subjects. They were all ushered into a dimly lighted apartment through which scented perfumes were wafted, and in which the strictest silence was observed. They were then fastened to one another by cords and chains, and Mesmer himself, dressed as a magician, walked amongst them with a huge magnet, touching first one and then another, until he produced the results he desired. Many of the women fainted, others were either rendered highly hysterical and cried out, or were convulsed. Men also were thrown into convulsions, so that the spectacle was a weird one, and one well calculated to work powerfully upon the imagination of each fresh patient.

Such goings on naturally created a great stir in Paris, and eventually the Government appointed a Commission to investigate the matter. This Commission, amongst the members of which were Baillie and Franklin,[b] reported *unfavourably* of Mesmer and his methods, and declared that both from a physical and a moral standpoint mesmerism should be condemned. They contended that only in desperate cases should it be allowed—in cases where "*il faut troubler tout pour ordonner tout de nouveau.*"

The very adverse report of the Commission caused Mesmer to leave Paris, and from this date onwards he practised his art but little, and only privately. He died in Switzerland the 5th of March, in the year 1815. He left, however, many disciples, who carried on his work, but who employed less violent and less harassing means to effect their results.

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[b] Franklin headed the list of signatures, but he never attended any o Mesmer's meetings in Paris; he signed the report merely on the strength of what he heard from other Commissioners.

The next great step which was made in the advance of hypnotism was in the year 1841, when James Braid, a Manchester surgeon, took up the study of the subject. He began his investigation as a complete sceptic, but he soon found that by the employment of certain means he could produce a sort of sleep, and a peculiar condition of the nervous system, which he termed "neuro-hypnotism" (fr. νεῦρον = a nerve, and ὕπνος = sleep). The prefix *neuro* was soon dropped for brevity sake, and hence the term hypnotism came into use.

Surgeon Braid was aided in his researches by the well-known physiologist, Dr. William Carpenter, whose name is connected with the theory of the reflex action of the ganglia at the base of the brain, and with the connection between hypnotism and this so-called reflex action.

Surgeon Braid and his followers used hypnotism largely in surgery to produce anæsthesia, and Dr. James Esdaile, in 1845, in Calcutta, began also to use it extensively in his practice for the same purpose. He has left us a record of 250 operations painlessly performed by the aid of hypnotism.

The great Liston used Braid's method also in some of his operations, and the well-known surgeons Velpeau and Broca both employed hypnotism successfully in twenty-four operations. Dr. Liébault, of Nancy, in 1860, was the next to advance the claim of hypnotism in medicine, and then the great Prof. Bernheim took up the subject, and in 1886 published his valuable work on hypnotism.

In England, Charles Lloyd Tuckey and others now began to employ the Nancy—*i.e.*, Liébault's—methods in medicine, and in 1892 Dr. Tuckey read a paper on the value of hypnotism in chronic alcoholism before the British Medical Association at Birmingham. During still more recent years many of us have had opportunities, even in Ireland, of seeing hypnotism employed by some of our leading Dublin physicians, foremost amongst whom in this connection I might perhaps mention Sir Francis Cruise.

We have now seen in a general sort of way how hypnotism gradually came to be recognised in medicine as a therapeutic agent. It now remains for me to state briefly the modern methods of inducing it, to discuss the modern theories regarding it, and to enumerate the various therapeutic uses to which it is put in our own day. The modern methods of inducing hypnotism may be classed under five heads—

1. *Mesmer's Method.*—This consists in a combination of many methods. Thus, Mesmer acted powerfully upon the imagination as

well as upon the sense of sight and the sense of hearing of his patients. He also brought the use of passes and of fascination to his aid.[a]

2. *Braid's Method.*—This consisted in wearying out the sense of sight by making the patient stare fixedly at a bright object for some time. Braid occasionally used *suggestion* to help him.

3. *Luy's Method.*—This is carried out by means of "Luy's Rotating Mirror." It was noticed that birds were caught by bird-catchers in France by luring them with a rotating mirror, and hence Dr. Luy, thinking the same method might be employed to hypnotise human beings, tried it and was successful. Its chief advantage lies in the fact that it saves the operator much trouble. The mirror is turned by clockwork.

4. *Charcot's Method.*—This consists in tiring out the sense of hearing by monotonous sounds. Charcot himself used a large tuning-fork for the purpose.

5. *The Nancy (or Liébault's) Method.*—This is the method most commonly adopted nowadays, and is carried out as follows:—Place the patient in a comfortable position with his back to the light, and then press gently upon his eyeballs, with his eyes closed, having prepared his mind as far as possible for hypnosis. Then let him hold a small disc slightly above the level of his eyes, and at a distance of six or eight inches from them, so that there is slight strain produced upon the capsule of Tenon[b] and on the muscles of the eye, and at the same time use suitable suggestions. These simple means, after a little time, usually suffice. But they may not. It is not always possible to hypnotise a patient in a short time, or even at the first attempt. Only about six out of every ten people can be hypnotised at the first attempt.

Dr. Milne Bramwell is said to have succeeded perfectly with one lady at the 69th trial, having failed 68 times previously.

There are, moreover, just a few people who seem to be not hypnotisable at all, *and no one can be hypnotised against their will*, except, perhaps, in some rare cases of acute hysteria, or hystero-epilepsy. In these cases the individual is sometimes spontaneously hypnotised by a sudden loud noise, such as a gong, &c. But even when the patient is quite willing to be hypnotised there is a great difference of susceptibility in individuals, and it is quite erroneous to think that weak people or people who have not strong wills are always the best subjects. On the contrary, strong men and athletes are often the easiest to hypnotise. Lunatics and very old people, as also very young children, are not very susceptible. The best age is from seven to fourteen years, and sex has but little influence. It has been noticed that phthisical patients are often very susceptible.

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[a] Fascination is a method of staring at the patient, and so wearying out his sense of vision. It has sometimes happened in the fascination method that the operator has become hypnotised before the patient.

[b] O'Ferrall's membrane.

The first thing that will be noticed in hypnotising a person will be that the pupils contract, probably for accommodation to the object which they are holding near their eyes, and then the pupils pass into a state of dilatation. When the pupils are fully dilated, if the eyes do not of themselves close, passes may be made in front of the patient from above downwards, or the eyelids may be gently closed by the operator, and then pressed upon. The patient will now probably be in the first stage of hypnosis, and can be made experience many strange sensations. In this stage pain, such as toothache or neuralgia, may be quite removed, and the patient wakened up quite well.

The deeper stages may be induced by further suggestions and by passes. These stages are very numerous, but suffice it to say that we may have light sleep, deep sleep, catalepsy, and somnambulism.

Amnesia may or may not exist on waking, according to the stage induced and the suggestions given. Whilst the patient is in the hypnotic state the most extraordinary phenomena may be produced by suggestion. Thus, aphasia, amnesia, analgesia, sensations of heat or cold, exciting or *depressing* emotions, hallucinations and *illusions* of the most varied character may be induced. The peristaltic action of the bowels may be influenced, and diarrhœa has been successfully treated by hypnosis.

De Jong, the famous Dutch hypnotist, could in one patient produce and check borborygmi at will during hypnosis.

Again, many of the senses may be either exalted or entirely suspended by a mere suggestion. Thus, deafness, or blindness, or loss of taste or smell may be induced. As instances of exalted senses we have on record a case where the patient could hear a watch at 35 feet, which in his ordinary state he could hear only at 3 feet. We have another case in which a patient could track anyone in a room, like a dog, by the sense of smell, by being once allowed to smell the glove worn by this person. Again, a hypnotised person, if his vision be exalted, will easily be able to recognise at a considerable distance one sheet of note paper from another by means of the small lines on it, which would be quite indistinguishable to our normal eyes. Pain can easily be induced, and a regular blister has been produced by a mere scrap of paper when the suggestion has been made that it was a blister.

Other strange phenomena in connection with hypnotism are :—"Post-hypnotic Suggestion," and the being "*en rapport.*" By post-hypnotic suggestion is meant that after being waked up a patient will frequently act upon some suggestion which has been given to him while under hypnosis. For instance, if the operator tells him that he is to do a certain thing at a certain time after he wakes up he will frequently do it. Being *en rapport* means that the patient will hear and pay attention to no suggestions save those of the operator, or of some person whom the operator has specially introduced to the notice of the patient and commanded the patient to hear and obey.

Let us now consider the various medical ailments in which the use of hypnotism has been advocated in recent years. In hysteria and all allied neuroses, and in fact in *all* neurotic affections, which are very numerous, hypnotism is simply invaluable.

For the relief of various forms of bodily pain and for mental worry it is often most successful. For the cure of perverted moral tendencies the use of hypnotism has also been attended with the most happy and beneficial results. It has also sometimes been used in midwifery, both to bring about a painless delivery and to act beneficially upon the mind of the mother during her pregnancy, for it has long been known that unpleasant sights and mental trouble to the mother will often affect the development of the child "in utero." As instancing this, I may mention the cases which our President related to us at our last meeting in connection with the Armagh railway disaster. Three women who were pregnant received injuries at that disaster, and the child in each case, which was born months after, had a congenital defect corresponding to the nature of its mother's injury. Thus, one woman had her spine injured, and the child was born with a spina bifida. Other such cases that I have myself met with are :—

1. A pregnant woman ran her hand down into a big pot of red jam, believing the jar to be empty. She got a great fright, and her child was born with a red hand.

2. In another case a mouse jumped out of a cupboard and hit the mother on the eyebrow. The child was born with an eyebrow which certainly resembled a mouse in form.

3. In another case the mother got a blow of a beefsteak on her cheek, and the child was born with a large nævus on same cheek.

I heard of another case where a woman's sister had a child born with six fingers, and this so preyed upon her mind that the next child she bore had also six fingers.

Another case I have been told of was that of a young pregnant woman who suddenly received a blow of a bunch of cherries one day in her garden. The child, a girl, which was born some months after, had a nævus on its cheek which closely resembled a bunch of cherries, and my informant went on to state that this cherry nævus got ripe regularly every summer.

To the gynæcologist, too, hypnotism has proved serviceable; and many authenticated cases are on record of dysmenorrhœa and even of amenorrhœa which have been successfully treated by hypnosis after other measures had failed. Ovarian pain, which is sometimes a source of great agony to a woman, has also been entirely removed by hypnotism in cases where the patient had been told that her only chance of recovery lay in operation and the removal of the ovary.

In cases of lunacy, too, hypnotism has been tried, and I believe with some success; but there are many difficulties in the way of its employment, as the patient is usually very suspicious and apt to become violent. Even in such cases as *organic* heart disease hypnotism has done much good in quieting the patient, and in drawing off his attention from the diseased organ, a matter of no small importance in heart affections, as every experienced practitioner will testify.[*] In other diseases, too, a quiet state of mind and body is often of great import, and hypnotism can secure this, acting as a mental opiate as it were.

In the writings of such men as Trousseau, Graves, Sir James Paget, and other eminent physicians, we find great stress always laid upon the influence of the mind over the body, and it is an every-day hospital experience that those patients who are in low spirits and despondent from the start of their illness, run a much worse chance of recovery than those who are high-spirited and hopeful. Many diseases are even produced by mental worry. Thus, we have probably all seen cases of exophthalmic goître or chorea arising in this way; and at the time of the Franco-Prussian war a regular epidemic of exophthalmic goître is said to have occurred amongst the people of Alsace and Lorraine. Trousseau expressly points out how neuralgic and mental worry excites the secretion of neighbouring glands; how intellectual engrossments, anger, &c., will affect the secretion of milk, &c.; how mental disturbances (*e.g.* hysteria) will increase micturition; and how fear may induce diarrhœa. And he impresses upon us the fact that the whole digestive system, including the liver and pancreas, may be largely affected by the mind.

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[*] Dr. William Stokes, in his book on "Diseases of the Heart," lays much stress upon this factor in the cure of disease.

As instancing the effect of the mind on the body, there is a very interesting experiment on record made by Professor "Delbœuf, of Liège." This gentleman hypnotised a patient, and then burnt with caustic his two arms in an exactly similar manner, and to the same extent. He then suggested to the hypnotised man that the right arm would heal without pain, and very quickly, but that the left arm would heal in the ordinary way (*i.e.*, would be painful and take longer). The suggestion was carried out to the letter, and the right arm was well weeks before the left.

Another class of cases in which hypnotism might be useful is in cases of shock—say after a railway accident, where the shock does not come on immediately. Might it not be possible to hypnotise the patient in the interval between the time of the accident and the onset of shock, and then by suitable suggestion to arrest the terrible consequences that sometimes follow such accidents.

In surgery hypnotism has frequently been used as an anæsthetic, and, as mentioned above, Dr. James Esdaile, of Calcutta, has left a record of 250 operations painlessly performed by its aid, while Liston, Velpeau, and Broca, all testify also to its use in this way. Of course since the introduction of chloroform and ether hypnotism is no longer used as an anæsthetic, but one case is quoted in the *British Medical Journal* of Nov. 15th, 1890, where Dr. A. B. Shaw, of St. Louis, had to do a trephining operation for traumatic epilepsy, and where advanced kidney and cardiac disease rendered the use of ether or chloroform dangerous. And in this case hypnotism was resorted to, and the operation painlessly and successfully performed. In cases of insomnia, too, hypnotism is often of the greatest service.

Having now seen the methods of inducing hypnosis, and the phenomena that may be produced by it and also its therapeutic uses, let us for a moment consider the "theories" of what hypnotism really is.

Hypnotism has been said, at different times, to be due to (1) magnetism or some such allied force; (2) electricity; (3) a force which emanates from one being to another, and peculiar to certain individuals; (4) to the mere power of will of one person crushing the will of another; (5) to the power of the devil, &c. We nowadays, however, recognise in hypnotism the expression of purely physiological phenomena, and as our knowledge of the brain grows so our power of explaining these phenomena is increased. Liébault held that owing to a dulling of consciousness and of sensations, there was a great accumulation of energy in the brain, and that this could then be directed into any one channel by the operator.

A scientist named Tarchanoff—as narrated by Dr. Lloyd Tuckey—has illustrated the powerful action of suggestion in hypnotism by comparing the mind in its waking state to a room into which light is entering from all directions, and the mind in hypnosis to a darkened room. In the first case, the effect is general illumination without undue prominence being given to any one ray. But in the second case, when the room is darkened, if a solitary ray be sent in, this one ray, which before would have passed unnoticed, now shines with exaggerated force and brilliancy. In like manner as a ray of light will pierce the material gloom so will a suggestion in a hypnotised person work its way into the mind with increased power and effect—since there will be no other ideas present to influence it or dispute the field.

Dr. Rudolf Heidenhain, Professor of Physiology in the University of Breslau, first held that hypnosis was due to a contraction of the arteries supplying the brain, and brought about by the sensory stimulus employed to induce the hypnotic condition. He considered hypnosis therefore to be due simply to anæmia of definite parts of the brain. He soon found, however, that this theory could not hold water, as patients in hypnosis are usually flushed in the face, and not pale, as they would be if the arteries were contracted, and, moreover, on experiment he found that nitrite of amyl, which brings much more blood to the brain, even heightened the influence of hypnosis and rendered its induction easier.

Professor Heidenhain's latest theory, and the one which is now most generally accepted for hypnosis, is based upon the physiological doctrine of "inhibitory nervous action." He states that the phenomena of hypnotism are induced by the *inhibition of the activity of the ganglionic cells of the cerebral cortex*, which inhibition is brought about by the prolonged gentle stimulation of the sensory nerves of the face, or of the auditory or optic nerves.

In support of this theory many facts might be adduced, but one example of inhibitory nervous influence with which we are all cognisant from our physiological studies is that displayed by the ganglia of the heart. We all know that if the vagus nerve be stimulated the heart's action will be slowed, and finally with increased stimulation stopped, whilst stimulation of the sympathetic nerve will quicken the heart. But the fibres from these nerves do not act upon the cardiac muscle, they merely convey impressions to the ganglionic cells of the heart, and it is through these that the heart is influenced. Perhaps the best way of illustrating this inhibitory action of the vagus is to remind you of the fact that a person in a great heat who suddenly drinks off a cup of very cold water is liable to sudden death from inhibition of the heart, through the stimulus transmitted from the stomach by the vagus nerve. Asthma arising from dyspepsia is perhaps another example of the same thing.

This form of nervous influence displayed by the heart is now known to play a very important part in all other forms of nervous action. We also know from our physiology that this peculiar nervous inhibitory action may be induced by certain *sensory* stimuli. For example, if a tight ligature be put round the thigh of a frog which is lying on its back it will lose all power to recover its normal position, or if pressure be made upon the internal organs of a rabbit's abdomen the sensory stimuli thus created will cause paralysis of its hind legs.

A sudden fright may also cause temporary paralysis or unreasoning action. If an elderly lady is suddenly nearly run over in the street she will frequently run wildly in any direction in which the by-standers may shout to her to run, without reasoning, or in fact knowing what she is doing. *So that we arrive at the conclusion that when one set of sensory or recipient cells are in a state of great irritability inhibition of voluntary movements may result, and reflex actions may occur without any true consciousness of their occurrence on the part of the individual in whom they occur.*

This is exactly what takes place in hypnotism. Through the inhibition of activity of certain cerebral ganglia the physiological connection which normally exists between the higher brain (*i.e.*, where will, reason, and consciousness are situated) and the lower brain (*i.e.*, the automatic or reflex brain) are weakened, or for the time being completely cut off. The consequence of this is that any impressions which can be conveyed to this lower brain will produce results without the intervention of the higher brain—that is, will produce simple reflex results without any consciousness, reasoning, or volition on the part of the subject. It may at first sight seem strange that mere suggestion should cause these reflex acts, but it will not seem so strange if we but consider for a moment the way in which in our early nursery days we all learnt to perform the simplest of our acts. Were we not influenced in everything by the suggestions of those around us, whether those suggestions were given by word of mouth or by their actions? And do we not even in adult life often receive and act upon the suggestions of others without troubling to reason out or analyse those suggestions?

Certainly eight people out of ten whom you meet in the street if you say to them, "It's a fine day," or "It's a gloomy day," will immediately acquiesce, and say, "Yes, indeed it is"—even though they might, if they took time to consider the question, be of quite a contrary opinion.

Again, you are going out, say, and the day looks gloomy. You take up your umbrella and prepare to start, when some friend who is going out with you says: "Oh, don't bring the gamp with you, it's sure not to rain, and it will only be a nuisance having to carry it." How often would you not be influenced by this suggestion, and leave the umbrella at home, even though in your own judgment you thought it might rain? This shows us how ready we are even in our normal state to receive suggestions. This readiness to receive and act upon suggestion is merely heightened in hypnosis, for in this condition the state of childhood is in a way recalled, inasmuch as the physiological functions of the higher brain are in hypnosis suppressed, whereas in childhood they are undeveloped. By some it is held that this ganglionic inhibitory action may be exercised not, as suggested above, on the lower cells of the cerebral cortex, resulting in a cutting off of the higher from the lower brain, but upon the higher cells of the cerebral cortex, so that impressions may reach the higher brain, but that here the cells are in a state of inhibition to receive any impulses from the will of the hypnotised person, and so the reflex actions are produced by impulses passing right through the higher brain as well as the lower, and hence out by the efferent tracts.

There is, perhaps, just one point which it might be well to touch upon at the close of my remarks. The assertion is sometimes made that hypnotism is unjustifiable from a moral point of view, inasmuch as the morals, especially of women, are liable to suffer from its use. Suffice it to say in this connection that men who have devoted their lives to the study of the subject are of an entirely different opinion. Professor Bernheim, after an experience of 10,000 cases, expresses his entire satisfaction of it both morally and physically.

Professor Heidenhain and von Krafft Ebing are of the same opinion, as also are Drs. Moll, Kingsbury, Lloyd Tuckey, de Jong and a host of others; while Dr. Liébault, after thirty years continuous practice of it, says that he cannot recall a single instance in which he regrets having adopted it.

These facts speak for themselves, and it is worthy of note that those who cry down hypnotism on moral grounds, and are its fiercest antagonists, are invariably those who understand it least, and who have never seen it largely practised. For my own part, I believe that so far from being morally injurious, hypnotism is frequently of the greatest moral good. Many who had been leading the most debauched lives have been brought back to a sense of duty by its aid, and many a drunkard has been reclaimed.

In conclusion, I may say that I am well aware that many points—perhaps points of much interest—have been omitted from my remarks, but inasmuch as my space is limited, and that these points have no direct bearing upon the medical aspect of the question, I have been obliged to pass them over in silence.

For the information contained in the foregoing remarks I am deeply indebted to the works of Drs. Kingsbury and Charles Lloyd Tuckey, of England, and of Dr. Charcot, of Paris.

A CASE OF SYPHILIS WITH NO PRIMARY SORE.

Dr. C. F. Marshall (*Lancet*, May 20, 1899) reports the following case, which was under observation from the first:—"On March 21st a man, aged about 25 years, was sent to me by Dr. Steegmann with a view to the diagnosis of syphilis. He had a roseola rash on the chest, abdomen, and flanks, but no other signs, and no primary sore. In January (two months before) he had contracted gonorrhœa, and feared that he had also got syphilis owing to some inflamed smegma glands exciting his suspicion. From that date up to the present time he was under the observation of Dr. Steegmann and myself, and at no time did any 'primary sore' develop. Later, in March, a typical polymorphous secondary syphilide appeared, followed by injection of the fauces and mucous patches on the prepuce. Writing on syphilis in 1897 Stassano was of opinion that many cases of syphilis occur without a primary chancre, and that a solution of continuity is not necessary for its formation, as shown by the occurrence of chancres on the tonsils, where such solutions of continuity could hardly occur."

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—**Edward H. Bennett**, M.D., F.R.C.S.I.
General Secretary—**John B. Story**, M.B., F.R.C.S.I.

SECTION OF MEDICINE.

President—**J. W. Moore**, M.D. Univ. Dubl.; President of the Royal College of Physicians of Ireland.
Sectional Secretary—**R. Travers Smith**, M.D. Univ. Dubl.

Friday, March 10, 1899.

The **President** in the Chair.

Ulcer of the Œsophagus.

Dr. J. A. Lindsay (Belfast) read notes of a case of above. [They will be found at page 266.]

Dr. Finny said he could not understand how mediastinal emphysema could reach the eyelids, though, of course, there were records of emphysema of the eyelids from rupture of the air passages.

Dr. Hayes related the case of a young man dying of rapid general tuberculosis, who two days before death complained, after drinking some milk, of intense pains over the sternum. An autopsy showed the extravasation of milk surrounding the œsophagus, which had two ruptures about half-way down.

Dr. Coleman referred to the case of a boy who, after swallowing a large fish bone, developed not only pus, but also air in pericardium, due, no doubt, to the fish bone ulcerating through the œsophagus. He believed that the gas in the pericardium was due to decomposition, and this was also a possible explanation of the emphysema which was present in Dr. Lindsay's case.

Dr. Lindsay replied.

Probable Tubercular Meningitis.

Dr. Lindsay also read notes of a case of probable tubercular meningitis. [They will be found at page 268.]

Dr. Drury said that the frequent pulse, regular throughout, the rather high temperature, the absence of strabismus or any form of paralysis, and the involuntary passage of the evacuations, led him to believe that it was not tubercular meningitis. He suggested that it was a case of rheumatic pleurisy with some rheumatic meningitis.

Dr. Finny said he had very great doubts that it was a case of tubercular meningitis. He thought that many of the cases condemned as tubercular meningitis may really be ordinary meningitis.

Dr. Knott said that tubercular meningitis as a primary and uncomplicated disease occurred very rarely. In children it was nearly always a part of general tuberculosis.

Dr. R. Travers Smith asked whether the choroid coat of the eye had been examined for the presence of tubercle.

The President thought as cases of tubercular peritonitis could recover without operation so might tubercular meningitis. He suggested that they should try the tuberculin test in these cases, but he believed that both pleural effusion and the head symptoms were possibly due to the micro-organisms of pneumonia, which sometimes produced a very dangerous form of meningitis.

Dr. Lindsay, in reply, said that the President's suggestion of pneumonia had also occurred to him. Tubercles were not found in the choroid, but the patient was so restless that the examination of the eye was accomplished with difficulty.

Non-febrile Pneumonia.

Dr. Lindsay also read notes of a case of non-febrile pneumonia. [They will be found at page 270.]

The President said there was nothing new in the apyrexia. The new doctrine about the production of pyrexia was that it depended upon the effect on the central nervous system of the albumoses developed by the action of the poison, whereas the ptomaïns produced the other head symptoms. It was possible that the action of the albumoses had an opposite effect in certain cases, and produced collapse. He considered that the hypodermic administration of strychnin was one of the best remedies in the collapse of all fevers.

Dr. Cosgrave mentioned a case of pneumonia in which the temperature remained subnormal throughout. He had tried hypodermics of strychnin, but they had had no effect.

Dr. Lindsay, in reply, said he always gave strychnin in these cases.

Morphinomania.

Dr. H. C. Drury read a paper on this subject. [It will be found at page 321.]

Dr. Dawson, **Dr. Cosgrave** and the **President** discussed it.

The Section then adjourned.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. MOORE, B.A., M.D. Univ. Dubl.;
P.R.C.P.I.; F. R. Met. Soc.;
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VITAL STATISTICS

For four Weeks ending Saturday, April 22, 1899.

The deaths registered in each of the four weeks in the twenty-three principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

TOWNS	Weeks ending				Average Rate for 4 weeks	TOWNS	Weeks ending				Average Rate for 4 weeks
	April 1	April 8	April 15	April 22			April 1	April 8	April 15	April 22	
23 Town Districts	29·0	27·3	25·4	23·7	26·3	Limerick -	43·5	16·8	18·2	8·4	21·7
Armagh -	14·3	28·5	21·4	7·1	17·8	Lisburn -	12·8	38·3	17·0	17·0	21·3
Ballymena	45·1	39·5	28·2	73·3	46·5	Londonderry	25·1	11·0	29·8	23·6	22·4
Belfast -	29·5	25·9	21·5	20·3	24·3	Lurgan -	9·1	22·8	18·7	18·2	16·0
Carrickfergus	23·4	5·8	11·7	5·8	11·7	Newry -	16·1	16·1	32·2	12·1	19·1
Clonmel -	29·2	39·0	43·8	9·7	30·4	Newtownards	28·3	22·7	17·0	17·0	21·3
Cork -	27·0	29·8	16·6	21·5	23·7	Portadown -	24·7	12·4	12·4	49·5	24·8
Drogheda -	22·8	19·0	7·6	7·6	14·3	Queenstown	11·5	11·5	23·0	5·7	12·9
Dublin - (Reg. Area)	30·4	31·9	32·3	29·7	31·1	Sligo -	25·4	15·2	20·3	10·2	17·8
Dundalk -	8·4	33·5	29·3	37·7	27·2	Tralee -	89·5	33·6	16·8	33·6	43·9
Galway -	11·3	34·0	18·9	41·5	26·4	Waterford -	29·8	29·8	31·8	27·9	29·8
Kilkenny -	33·0	18·9	56·6	18·9	31·8	Wexford -	18·1	22·6	22·6	18·1	20·4

In the week ending Saturday, April 22, 1899, the mortality in thirty-three large English towns, including London (in which the rate was 17·2), was equal to an average annual death-rate of 18·3 per 1,000 persons living. The average rate for eight principal towns of Scotland was 18·1 per 1,000. In Glasgow the rate was 19·3. In Edinburgh it was 17·2.

The average annual death-rate represented by the deaths registered during the same week in the Dublin Registration Area and in the twenty-two principal provincial Urban Districts of Ireland was 23·7 per 1,000 of their aggregate population, which, for the purpose of this return, is estimated at 1,053,188.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 2·3 per 1,000, the rates varying from 0·0 in fourteen of the districts to 28·0 in Tralee—the 6 deaths from all causes registered in that district comprising 5 from measles. Among the 136 deaths from all causes registered in Belfast are 6 from measles, 2 from scarlatina, 6 from whooping-cough, 2 from diphtheria, one from enteric fever, and 2 from diarrhœa. The 31 deaths in Cork comprise 2 from whooping-cough and one from diarrhœa. Among the 14 deaths in Waterford are 2 from measles and one from simple continued fever. The 9 deaths in Dundalk comprise 3 from whooping-cough.

In the Dublin Registration Area the births registered during the week ending April 22 amounted to 210—105 boys and 105 girls; and the deaths to 202—105 males and 97 females.

The deaths, which are 21 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 30·1 in every 1,000 of the population. Omitting the deaths (numbering 3) of persons admitted into public institutions from localities outside the Area, the rate was 29·7 per 1,000. During the sixteen weeks ending with Saturday, April 22, the death-rate averaged 30·1, and was 1·7 under the mean rate in the corresponding portions of the ten years 1889-1898.

The number of deaths from zymotic diseases registered during the week was 19, being 3 below the average for the corresponding week of the last ten years, and 6 under the number for the previous week. The 19 deaths comprise one from scarlet fever (scarlatina), 7 from influenza and its complications, 3 from whooping-cough, 2 from diphtheria, 2 from enteric fever, and 2 from diarrhœa.

The weekly number of cases of scarlatina admitted to hospital, which had risen from 10 in the week ended April 8, to 15 in the following week, fell to 9. Eight scarlatina patients were discharged, and 72 remained under treatment on Saturday, April 22, being one over the number in hospital on the previous Saturday. There were also 19 convalescents under treatment at Beneavin, Glasnevin, the Convalescent Home of Cork-street Fever Hospital.

Six cases of enteric fever were admitted to hospital, or 6 under the number in the preceding week, and one under the admissions in the week ended April 8. Seventeen patients were discharged during the week, 2 died, and 55 remained under treatment on Saturday, being 13 under the number in hospital at the close of the preceding week.

The number of cases of diphtheria admitted to hospital was 6, being 3 under the admissions in the preceding week, but 4 over the number admitted during the week ended April 8. Three patients were discharged during the week, and 32 remained under treatment on Saturday, being 3 over the number in hospital at the close of the preceding week.

The deaths from diseases of the respiratory system registered during the week amounted to 57, being 20 in excess of the average for the corresponding week of the last ten years, and 14 over the number for the previous week. They comprise 33 from bronchitis, 21 from pneumonia, and 2 from croup.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N., Long.* 6° 15′ *W., for the Month of April,* 1899.

Mean Height of Barometer,	29·796 inches.
Maximal Height of Barometer (22nd, 9 a.m.),	30·257 „
Minimal Height of Barometer (13th, 9 a.m.),	28·965 „
Mean Dry-bulb Temperature,	47·3°.
Mean Wet-bulb Temperature,	44·2°.
Mean Dew-point Temperature,	40·7°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·256 inch.
Mean Humidity,	78·5 per cent.
Highest Temperature in Shade (on 28th),	64·0°.
Lowest Temperature in Shade (on 16th),	35·1°.
Lowest Temperature on Grass (Radiation) (on 18th),	30·0°.
Mean Amount of Cloud,	64·0 per cent.
Rainfall (on 20 days),	1·995 inches.
Greatest Daily Rainfall (on 24th),	·382 inch.
General Directions of Wind,	N.W., W., S.W.

Remarks.

April, 1899, proved a changeable, showery and cloudy month. The wind was particularly variable in direction and force. A prolonged series of gales was experienced from the 4th to the 8th inclusive. There was a cold spell from the 13th to the 19th. As in April, 1898, at the close many forest trees were in full leaf.

In Dublin the arithmetical mean temperature (48·6°) was 0·9° above the average (47·7°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 47·3°. In the thirty-four years ending with 1898, April was coldest in 1879 (the cold year) (M. T.=44·5°), and warmest in 1893 (M. T.=51·4°). The month of April, 1893, was the warmest for at least 30 years.

The mean height of the barometer was 29·796 inches, or 0·054 inch below the average value for April—namely, 29·850 inches. The mercury rose to 30·257 inches at 9 a.m. of the 22nd, and fell to 28·965 inches at 9 a.m. of the 13th. The observed range of atmospheric pressure was, therefore, 1·292 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 47·3°, or 3·9° above the value for March, 1899. Using the formula, *Mean Temp.=Min.* + (*Max.* — *min.* × ·476), the value is 48·3°, or 0·9° above the average mean temperature for April, calculated in the same way, in the twenty-five years, 1865–89, inclusive (47·4°). The arithmetical mean of the maximal and minimal readings was 48·6°, compared with a twenty-five years' (1865–1889, inclusive) average of 47·7°. On the 28th the thermometer in the screen rose to 64·0°—wind, S.S.W.; on the 16th the temperature fell to 35·1°—wind, N.N.E. The minimum on the grass was 30° on the 18th.

The rainfall was 1·995 inches, distributed over 20 days. The average rainfall for April in the twenty-five years, 1865–89, inclusive, was 2·055 inches, and the average number of rainy days was 15·2. The rainfall, therefore, was slightly below, whereas the rainy days were much above, the average. In 1877 the rainfall in April was very large—4·707 inches on 21 days. On the other hand, in 1873, only ·498 inch was measured on 8 days. In 1898, 2·666 inches fell on 16 days.

Fog was observed on the 1st, 9th, 24th, and 27th. High winds were noted on 10 days, reaching the force of a gale on the 4th, 5th, 6th, 7th, and 8th. Hail fell on the 8th, 14th, and 17th; sleet on the 17th. The temperature rose to or above 60° in the screen on 5 days. It thrice failed to reach 50° (on the 15th, 16th, and 17th). It never fell to 32° in the screen, but on 7 nights it fell to or below 32° on the grass. The mean lowest temperature on the grass was 37·8°, compared with 40·2° in 1898, 37·7° in 1897, 40·6° in 1896, 37·8° in 1895, 40·0° in 1894, 38·2° in 1893, 32·4° in 1892, 34·1° in 1891 and 1890, 34·4° in 1889, 34·6° in 1888, and 31·6° in 1887. Solar halos were seen on the 3rd, 16th, 18th, and 19th; lunar halos on the 18th and 19th. Slight thunder and lightning occurred on the 25th.

The rainfall in Dublin during the four months ending April 30th amounted to 7·557 inches on 71 days, compared with 7·236 inches on 64 days in 1898, 9·554 inches on 79 days in 1897, 5·781 inches on 63 days in 1896, 10·233 inches on 65 days in 1895, 9·151 inches on 73 days in 1894, 6·242 inches on 56 days in 1893, 5·922 inches on 61 days in 1892, only 3·203 inches on 46 days in 1891, and a twenty-five years' average of 8·466 inches on 66·2 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall amounted to 2·690 inches on 19 days. The heaviest falls in 24 hours were ·550 inch on the 12th and ·565 inch on the 13th. The total rainfall in 1899, up to April 30th, was 12·380 inches on 70 days, compared with 8·890 inches on 56 days in 1898, 13·080 inches on 80 days in 1897, 5·686 inches on 50 days in 1896, 12·570 inches on 54 days in 1895, 12·456 inches on 70 days in 1894, and 8·530 inches on 54 days in 1893.

At Cloneevin, Killiney, Co. Dublin, 2·07 inches of rain fell on 20 days. The maximal fall in 24 hours was ·48 inch on the 13th. The average rainfall in April of the fourteen years, 1885–98, was 1·977 inches on 12·7 days. Since January 1, 1899, 9·02 inches of rain fell at this station on 65 days, compared with 7·74 inches on 61 days in 1898, 10·36 inches on 83 days in 1897, 5·27 inches on 55 days in 1896, 11·28 inches on 66 days in 1895, 9·09 inches on 74 days in 1894, and 6·94 inches on 57 days in 1893.

At the National Hospital for Consumption, Newcastle, Co. Wicklow, the rainfall was 2·722 inches on 19 days, compared with 4·441 inches on 15 days in 1898, and 3·406 inches on 19 days in 1897. On the 12th ·463 inch was measured, and on the 13th ·510 inch. The maximal temperature in the shade was 61·2° on the 3rd. The minimal temperature in the screen was 33·7° on the 18th. At this station 12·651 inches of rain fell on 67 days up to April 30th, compared with 9·208 inches on 55 days in the corresponding period of 1898, and 13·492 inches on 76 days in the first four months of 1897.

GLANDERS IN BELFAST.

Between September, 1898, and the present date several cases of glanders having occurred, especially among horses owned by car-drivers using the same "hazard," the Veterinary Department of the Privy Council, Dublin, have instructed the authorities to disinfect the stands, and if necessary to close the drinking fountains used by animals, and to take any other required precautions.—*Lancet*, May 20, 1899.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

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INDEX

TO THE ONE HUNDRED AND SEVENTH VOLUME.

Abdomen, shot by a pistol in the, 62.
Abdominal section, Dr. Alfred Smith's cases of, 73, 81.
Academy of Medicine in Ireland, Royal, 65, 145, 223, 302, 384, 465.
Africa, Guide to South, *Rev.*, 298.
Alcoholic poisoning, acute, in a child aged four, 399.
Allbutt, Dr. T. Clifford, system of medicine, *Rev.*, 374.
Althaus, Dr. Julius, failure of brain power, *Rev.*, 40.
Alvarenga Prize of the College of Physicians of Philadelphia, 89.
Anatomy and Physiology, Section of, in the Royal Academy of Medicine in Ireland, 384.
Anderson, Dr. T. M'Call, contributions to clinical medicine, *Rev.*, 285.
Aneurysm—recovery from innominate, Dr. Craig on, 228; of the uterine artery, 221.
Annales des maladies des organes génito-urinaires, *Rev.*, 359.
Aorta—rupture of, Mr. Maunsell on, 147; Dr. J. Lumsden on, 147; aneurysms of, Dr. W. J. Thompson on, 148.
Aortic opening, bicuspid, Dr. Drury on, 66.
Appendicitis, acute, saline aperients in, 398.
Archives of the Roentgen Ray, *Rev.*, 61, 294, 376.
Artificial effervescent mineral water salts, 472.
Ascites, acute hæmorrhagic, Dr. J. M. Finny on, 1, 71.
Astragalus, dislocations and fractures of the, Mr. H. Gray Croly on, 302.
Aylesbury Dairy Company, 319.

Bacillus, typhoid, Dr. McWeeney on the, 231.
Baker, Dr. A. G., Bianchi on the phonendoscope, *Rev.*, 287.
Bannatyne, Dr. Gilbert A., thermal waters of Bath, *Rev.*, 368.
Bardeen, Dr. C. B., pathology of superficial burns, *Rev.*, 181.
Barrys, Dr. L. Bolton, American text-book of genito-urinary diseases, *Rev.*, 203.
Bath, thermal waters of, *Rev.*, 368.
Bayer & Co., Messrs. F., new pharmaceutical products, 160.
Beatty, Dr. Wallace, mercury in heart disease, 227.
Belfast, glanders in, 471.
Beri-beri, clinical features of, Dr. Conolly Norman on, 307.
Bewley, Dr. H. T., case of chyluria, 105, 225.
Bianchi, Dr. A., the phonendoscope, *Rev.*, 287.
Bibliographical notices, 40, 120, 190, 283, 356, 430.
Bicuspid aortic opening, Dr. Drury on, 66.
Billstein, Dr. Emma, Stöhr's text-book of histology, *Rev.*, 183.
Birmingham, Dr. William, delivery of an unusually large child, 222.
Birth of fœtus per vias naturales in extra-uterine pregnancy, 451.
Bladder—tearing away of, from its pelvic connections, 80; tuberculosis of the, by Mr. T. E. Gordon, 344.
Braithwaite, Mr. J. Oldham, the Pharmaceutical Formulary, *Rev.*, 60.
Breast, absence of the left, 282.
Brown's Guide to South Africa, *Rev.*, 298.
Buchanan, Dr. W. J., cerebro-spinal fever in India, 96.
Bulkley, Dr. L. Duncan, manual of diseases of the skin, *Rev.*, 295.
Bullet—wounds in the Spanish War, 119; in the heart for thirty-seven years, 282.
Burdett's Official Nursing Directory, 1899, *Rev.*, 441.
Burroughs, Wellcome & Co., Messrs., new preparations, 235, 319, 400, 472.

Cameron, Sir Charles A., C.B., Report on Public Health, 442.
Cancer, uterine, Dr. More Madden on, 401.
Carbolic acid "soloid," 235.

Cerebro-spinal fever in India, Dr. W. J. Buchanan on, 96.
Child, delivery of an unusually large, Dr. William Birmingham, 222.
Children, diseases of, special reports on, by Dr. W. Langford Symes, 141, 378.
Chlorine in enteric fever, 399.
Chreiman, M. A., health, *Rev.*, 201.
Chyluria, a case of, by Dr. H. T. Bewley, 105, 225.
Clinical—Reports of the Rotunda Lying-in Hospital, *Rev.*, 51; records, 63, 222; cases, Dr. Lindsay's, 266; Society of London, transactions of the, *Rev.*, 286.
Cocainism, Magnan symptom of chronic, 79.
Code of rules for the prevention of infectious and contagious diseases in schools, *Rev.*, 292.
Cold-bath treatment of typhoid fever, by Dr. Hare, *Rev.*, 135.
Coleman, Dr. J. B.—diseased hearts, 67; exhibits, 235, 307.
Congrès international de Gynécologie et d'Obstetrique, 318.
Consumption, Royal National Hospital for, at Ventnor, 159.
Cooke, Mr. Thomas, tablets of anatomy, *Rev.*, 120.
Cookery, national, 320.
Coxa vara, Sir Thornley Stoker on, 70, 223.
Craig, Dr. James, recovery from innominate aneurysm, 228.
Creosotal, 160.
Cripps, Mr. Harrison, ovariotomy and abdominal surgery, *Rev.*, 435.
Croly, Mr. H., specimens, 231.
Croly, Mr. H. Gray, dislocations and fractures of the astragalus, 302.

Da Costa, Dr. J. Chalmers, Zuckerkandl's Atlas of operative surgery, *Rev.*, 370,
Dairy—stock, tuberculosis in, 317; Company, Aylesbury, 319.
Dawson, Dr. W. R., report on neurology and psychiatry, 209.
Delirium from sodium salicylate, 240.
Dermatology, transactions of the third International Congress of, *Rev.*, 299.
Diet cards, Mr. Langford Symes's, 400.
Disinfectant, formalin vapour as a—Dr. Kirkpatrick on, 414; Dr. Littledale on, 420.
Disinfection of rooms, Dr. Percy Kirkpatrick on, 414.
Dixon, Professor, sensory distribution of seventh cranial nerve in man, 385.
Drugs, practical hints about the administration of, 78.
Drury, Dr.—bicuspid aortic opening, 66; morphinomania, 321, 398, 466.
Dublin—rainfall in, 155; meteorological observations in 1898 at, 157.
Duotal, 160.

Earl, Mr. Alfred, the living organism, *Rev.*, 291.
Edinburgh Medical Journal, *Rev.*, 294.
Edkins, Dr. J. S., elements of histology, *Rev.*, 134.
Embolism—pulmonary, in gastric ulcer, 79; cerebral, in enteric fever, Dr. J. W. Moore on, 350.
Empyema, 143, 144.
Encephalasthenia, 40.
Enchondroma of thigh, Mr. John Lentaigne on, 65.
England, death-rate from tuberculosis among males in, Dr. Martley on, 390.
Enteric fever—Dr. J. W. Moore on, 71; fatal through cerebral embolism, by Dr. J. W. Moore, 350; chlorine in, 399.
Erb's juvenile form of muscular atrophy, Mr. Langford Symes on, 307.
Erythrol tetranitrate, 377.
Eshner, Dr. A. A., Jakob's methods of clinical investigation, *Rev.*, 139.
Essays on leprosy, *Rev.*, 384.
Ewart, Dr. J. C., the Penycuik experiments, *Rev.*, 368.
Extra-uterine pregnancy, birth per vias naturales in, 451.

Femora, pathological, Dr. Knott on, 229.
Fever, enteric—Dr. J. W. Moore on, 71; cerebro-spinal, in India, Dr. W. J. Buchanan on, 96; embolism in, Dr. J. W. Moore on, 350; chlorine in, 399; paralysis in, 429; middens and, 442.
Fever, oyster, Dr. J. W. Moore on, 448.
Filtration, sterilisation of water by, 444.
Finny, Dr. J. Magee, acute hæmorrhagic ascites, 1, 71.
Flies and water supply, relative importance of, in spreading disease, 447.
Formalin vapour as a disinfectant, Dr. Percy Kilpatrick on, 414; Dr. H. E. Littledale on, 420.
Foundling Hospital, Moscow, 316.
Fowler, Dr. James K., diseases of the lungs, *Rev.*, 57.

Gastric ulcer, with death from pulmonary embolism, 79.
Gemmel, Dr. James F., idiopathic ulcerative colitis, *Rev.*, 126.
Gibson, Dr. G. A., diseases of the heart and aorta. *Rev.*, 127.
Gibson, Dr. G. A., Edinburgh Medical Journal, *Rev.*, 294.

Glanders in Belfast, 471.
Glenn, Dr. J. H., exhibition of specimens, 73.
Glycosuria cured in twenty-eight days, 301.
Godlee, Dr. Rickman John, diseases of the lungs, *Rev.*, 57.
Gordon, Mr. T. E., tuberculosis of the bladder, 344.
Grayson, Dr. Charles P., Grünwald's Atlas of diseases of the larynx, *Rev.*, 296.
Grimshaw, Dr. T. W., C.B., prevalence of tuberculosis in Ireland, 161, 251, 388.
Grünwald, Dr. L., Atlas of diseases of the larynx, *Rev.*, 296.
Guy's Hospital Reports, *Rev.*, 367.
Gynécologie et d'Obstetrique, Congrès international de, 318.

Hæmorrhagic ascites, acute, Dr. J. M. Finny on, 1, 71.
Haggard, H. Rider, Dr. Therne, *Rev.*, 205.
Hare, Dr. F. E., cold-bath treatment of typhoid fever, *Rev.*, 135.
Haughton, Dr. W. S., recent X-ray work, 145.
Health, Public, report on, by Sir C. A. Cameron, C.B., 442.
Heart, bullet in the, 282.
Heart disease, mercury in, Dr. Wallace Beatty on, 227.
Hearts, diseased, Dr. Coleman on, 67.
Hedley, Dr. W. S., archives of the Roentgen Ray, *Rev.*, 61.
Hernia, operative treatment of, Mr. M'Ardle on, 14, 224.
Heroïn, 160.
Hinshelwood, Dr. James, Dr. M'Call Anderson's clinical medicine, *Rev.*, 295.
Histology, works on, *Rev.*, 133, 134.
Hunt, Mr. Joseph, sterilisation of water by filtration, 444.
Hypnotism as a therapeutic agent, Mr. Lewis More O'Ferrall on, 452.

Index-Catalogue of the Library of the Surgeon-General's Office, *Rev.*, 364.
India, cerebro-spinal fever in, Dr. W. J. Buchanan on, 96.
Indian Medical Service, 311.
Infantile scurvy, 141.
Innominate aneurysm, recovery from, Dr. Craig on, 228.
Intestinal obstruction, chronic, Mr. Lentaigne on, 305.
Ireland—Royal Academy of Medicine in, 65, 145, 223, 302, 384, 465; prevalence of tuberculosis in, by Dr. T. W Grimshaw, C.B., 161, 251, 388; distribution of tuberculosis in, by Dr. P. Letters, 391; Royal University Calendar, *Rev.*, 441.

Jack, Dr. W. R., Pollack's methods of staining the nervous system, *Rev.*, 193.
Jackson, Mr. John, left-hand writing, *Rev.*, 372.
Jakob, Dr. C., Atlas of methods of clinical investigation, *Rev.*, 139.
Jellett, Dr. Henry, exhibition of specimens, 73.
Jessop, Mr. Walter H. H., manual of ophthalmic surgery and medicine, *Rev.*, 373.
Johns Hopkins' Hospital Reports, *Rev.*, 131.

Keen, Dr. William W., surgical complications and sequels of typhoid fever, *Rev.*, 300.
Kelly, Dr. A. O. J., von Hofmann's Atlas of legal medicine, *Rev.*, 138.
King's College Hospital Reports, *Rev.*, 50.
"King's Evil," country herbalist's cure for, Dr. Knott on, 71.
Kirkpatrick, Dr. T. Percy, on room disinfection by formalin vapour, 414.
Klein, Dr. E., elements of histology, *Rev.*, 134.
Knott, Dr. J. F.—pathological ulnæ, 69; a country herbalist's cure for the "King's Evil," 71; pathological femora and tibiæ, 229.

Lee, Dr. Frederic S., Verworn's General Physiology, *Rev.*, 430.
Lentaigne, Mr. John—diffuse enchondroma of thigh, 65; chronic intestinal obstruction, 305.
Leprosy, essays on, *Rev.*, 364.
Letters, Dr. P.—Public Health and preventable disease in the counties of Cork, Kerry, and Waterford, 33, 111, 181, 272; distribution of tuberculosis in Ireland, 391.
Lett's Medical Diary for the year 1899, *Rev.*, 60.
Lindsay, Dr. James A.—notes of some rare clinical cases, 266; ulcer of the œsophagus, 266, 465; tubercular meningitis, 268, 465; non-febrile pneumonia, 270, 466.
Literary notes, 398, 451.
Littledale, Dr. H. E., formalin vapour as a disinfectant, 420.
Luff, Dr. A. P., gout, *Rev.*, 196.
Lumsden, Dr. J., rupture of aorta, 147.
Lupus erythematosus, Dr. H. S. Purdon on, 30.

Macan, Dr. A. V., exhibition of specimens, 72.
M'Ardle, Mr. J. S., operative treatment of hernia, 14, 224.
M'Causland, Mr. R. Bolton, stab wounds of the shoulder, 70.
M'Keown, Dr. W. A., treatise on "unripe" cataract, *Rev.*, 195.
McWeeney, Dr. E.—septico-pyæmia, 68; agglutinability of different races of the typhoid bacillus, 231; bacteriological aspect of tuberculosis, 390.
Madden, Dr. T. More, uterine cancer, 401.
Magnan symptom of chronic cocaïnism, 79.
Marshall, Dr. C. F., syphilis with no primary sore, 464.
Martley, Dr. F., death-rate from tuberculosis in England, 390.
Maunsell, Mr., rupture of ascending aorta, 147.
Medical—miscellany, 63, 145, 223, 302, 384, 452; Corps, Royal Army, 311; Indian, Service, 311.
Medicine—Royal Academy of, in Ireland, 65, 145, 223, 302, 384, 465; Section of, in the Royal Academy of Medicine in Ireland, 71, 225, 307, 465; State, Section of, in the Royal Academy of Medicine in Ireland, 384.
Meningitis, tubercular—Dr. J. A. Lindsay on, 268, 465; Dr. Theodore Zangger on, 428.
Mercury in heart disease, Dr. Wallace Beatty on, 227.
Méric, Mr. H. de, English-French dictionary of medical terms, *Rev.*, 296.
Meteorological notes, 76, 152, 238, 314, 395, 469.
Middens and typhoid fever, 442.
Monell, Dr. S. H., treatment of disease by electric currents, *Rev.*, 207.
Moore, Dr. J. W.—septicæmia and enteric fever, 71; sanitary and meteorological notes, 74, 150, 236, 312, 393, 467; enteric fever fatal through embolic hemiplegia, 350; oyster fever, 448.
Moore, Mr. Thomas, archives of the Roentgen Ray, *Rev.*, 294, 376.
Morphinism and morphinomania, 398.
Morphinomania, Dr. H. C. Drury on, 321, 398, 466.
Morris, Mr. H., renal surgery, *Rev.*, 365.
Moscow Foundling Hospital, 316.
Mraček, Dr. Franz, Atlas of syphilis, *Rev.*, 291.
Mullaranny, Co. Mayo, Dr. F. J. B. Quinlan on, 177.
Mumps without inflammation of the salivary glands, 149.

National cookery, 320.
Neurology, report on, 209.
New preparations and scientific inventions, 160, 235, 319, 400, 472.
Non-febrile pneumonia, Dr. J. A. Lindsay on, 270, 466.
Norman, Dr. Conolly—report on neurology and psychiatry, 209; case of peritoneal tumour, 233; clinical features of beri-beri, 307.
Notes, literary, 398, 451
Novy, Dr. F. G., laboratory work in physiological chemistry, *Rev.*, 199.
Nursing Directory, Burdett's Official, 1899, *Rev.*, 441.

Obstetrics, Section of, in the Royal Academy of Medicine in Ireland, 72.
Obstruction, chronic intestinal, Mr. Lentaigne on, 305.
Odriozola, Professor, Verruga péruvienne, *Rev.*, 200.
Œsophagus, ulcer of, Dr. J. A. Lindsay on, 266, 465.
O'Ferrall, Mr. Lewis More, hypnotism as a therapeutic agent, 452.
Operative treatment of hernia, Mr. J. S. M'Ardle on, 224.
Ophthalmological Congress, Ninth International, 119.
Oppenheimer, Son & Co., Messrs., palatinoids of phenacetin and cocaïn, 320.
Original communications, 1, 81, 161, 241, 321, 401.
Oyster fever, Dr. J. W. Moore on, 448.

Palatinoids of phenacetin and caffeïn, 320.
Paracentesis pericardii, 397.
Paralysis, typhoid, 428.
Pathology, Section of, in the Royal Academy of Medicine in Ireland, 65, 145, 229.
Payne, Mr. Ernest, archives of the Roentgen Ray, *Rev.*, 294, 376.
Penrose, Dr. Charles B., text-book of diseases of women, *Rev.*, 53.
Periscope, 79, 159, 240, 317, 398,
Peritoneal tumour, case of, Dr. Conolly Norman on, 233.
Peterson, Dr. F., von Hofmann's Atlas of legal medicine, *Rev.*, 138.
Pharmaceutical products, new, 160.
Phenol soloid, 235.
Physicians' book for private formulæ, *Rev.*, 298.
Physiology, Anatomy and, Section of, in the Royal Academy of Medicine in Ireland, 384.
Pneumonia—by Dr. Whitla, 281; non-febrile, Dr. J. A. Lindsay on, 270, 466.

Polaillon, Dr., affections chirurgicales du tronc, *Rev.*, 202.
Poland, Mr. John—traumatic separation of the epiphyses, *Rev.*, 439; skiagraphic atlas, *Rev.*, 439.
Pollack, Dr. Bernhard, methods of staining the nervous system, *Rev.*, 193.
Pregnancy—contemporaneous uterine and extra-uterine, 240; birth per vias naturales in extra-uterine, 451.
Preparations, new, and scientific inventions, 160, 235, 319, 400, 472.
Prevalence of tuberculosis in Ireland, Dr. T. W. Grimshaw, C.B., on the, 161, 251.
Pringle, Dr. J. J., Third International Congress of Dermatology, *Rev.*, 299.
Prize, Alvarenga, of the College of Physicians of Philadelphia, 39.
Psychiatry, report on, 209.
Public Health—and preventable disease in the Counties of Cork, Kerry, and Waterford, by Dr. Letters, 33, 111, 181, 272; special report on, by Sir Charles A. Cameron, C.B., 442.
Purdon, Dr. H. S., note on lupus erythematosus, 30.
Purefoy, Dr., exhibition of specimens, 72.

Quinlan, Dr. F. J. B., Mullaranny, Co. Mayo, 177.

Rainfall in Dublin in 1898, 155.
Rebman Publishing Company, 398.
Records, clinical, 63, 222.
Reports, Special—diseases of children, by Dr. Langford Symes, 141, 378; progress of neurology and psychiatry, by Drs. Conolly Norman and Dawson, 209; public health, by Sir C. A. Cameron, C.B., 442.
Reviews and Bibliographical Notices, 40, 120, 190, 283, 356, 430.
Rideal, Dr. Samuel, practical organic chemistry, *Rev.*, 298.
Rotunda Lying-in Hospital, Clinical Reports of the, *Rev.*, 51.
Rowland, Mr. Sydney, archives of the Roentgen Ray, *Rev.*, 61.
Royal Academy of Medicine in Ireland, 65, 145, 223, 302, 384, 465.
Royal Army Medical Corps, 311.
Royal National Hospital for Consumption at Ventnor, 159.
Royal University of Ireland, Calendar, *Rev.*, 441.

Sajous, Dr. Charles E. de M., Cyclopædia of Practical Medicine, *Rev.*, 297, 438.
Saline aperients in early acute appendicitis, 398.
Sanitary and meteorological notes, 74, 150, 236, 312, 393, 467.
Scientific inventions, 160, 235, 319, 400, 472.
Septicæmia, Dr. J. W. Moore on, 71.
Septico-pyæmia, Dr. McWeeney on, 68.
Sheild, Mr. A. Marmaduke, diseases of the breast, *Rev.*, 369.
Shoulder, stab-wounds of the, Mr. R. B. M'Causland on, 70.
Simpson, Mr. Robert, Wright's Visiting Lists, *Rev.*, 62.
Skene, Dr. Alexander, diseases of women, *Rev.*, 55.
Slater, Mr. Charles, and Mr. Edmund J. Spitta, Atlas of bacteriology, *Rev.*, 288.
Smith, Dr. Alfred J.—exhibition of specimens, 72; one hundred cases of abdominal section, 73, 81.
Sodium salicylate, delirium from, 240.
Soloid, phenol, 235.
Spanish War, bullet wounds in the, 119.
Special reports—diseases of children, by Dr. Langford Symes, 141, 378; progress of neurology and psychiatry, by Drs. Conolly Norman and Dawson, 209; public health, by Sir C. A. Cameron, C.B., 442.
Spitta, Mr. Edmund J., and Mr. Charles Slater, Atlas of bacteriology, *Rev.*, 288.
State Medicine, Section of, in the Royal Academy of Medicine in Ireland, 388.
Stedman, Dr. Thomas L., Twentieth Century Practice, *Rev.*, 190, 283.
Sterilisation of water by filtration, 444.
Stewart, Sir T. Grainger, The Good Regent, *Rev.*, 204.
Stöhr, Dr. Philip, text-book of histology, *Rev.*, 133.
Stoker, Sir Thornley, coxa vara, 71, 223.
Stomach, complete removal of the, 78.
Story, Mr. J. B., tuberculosis oculi, 65.
Surgery, Section of, in the Royal Academy of Medicine in Ireland, 70, 223, 302.
Symes, Dr. Langford—report on diseases of children, 141, 378; case of Erb's juvenile form of muscular atrophy, 307; diet-cards, 400,
Symington, Professor, anatomical specimens, 388.
Syphilis with no primary sore, 464.

Tabloid—krameria and cocain, 319; B. P. pills, 400; bismuth and Dover's powder, 400.
Talbot, Dr. Eugene S., degeneracy, *Rev.*, 356.
Taylor, Dr. J. M., manual of the diseases of children, *Rev.*, 289.

Thigh, diffuse enchondroma of, Mr. Lentaigne on, 65.
Thompson, Dr. W. J.—aneurysms of aorta, 148; effects of sodium chloride on secretion of urine, 384; anæsthetics and urinary secretion, 389.
Thread-worms, 382.
Tibiæ, pathological, Dr. Knott on, 229.
Transactions of the—Society of Anæsthetists, *Rev.*, 48; Pathological Society of London, *Rev.*, 49; Clinical Society of London, *Rev.*, 286.
Tubercular meningitis, Dr. J. A. Lindsay on, 268, 465; Dr. Zangger on, 428.
Tuberculosis—oculi, Mr. J. B. Story on, 65; prevalence of, in Ireland, by Dr. T. W. Grimshaw, C.B., 161, 251, 388; in dairy stock, 317; of the bladder, Mr. T. E. Gordon on, 344; death-rate from, in England, Dr. Martley on, 390; bacteriological aspect of, Dr. McWeeney on, 390; distribution of, in Ireland, by Dr. P. Letters, 391.
Tweedy, Dr. E. Hastings, exhibition of specimens, 72.
Twentieth Century Practice, *Rev.*, 190, 283.
Typhoid—bacillus, Dr. McWeeney on the, 231; paralysis, 429; fever, middens and, 442.

Ulcer—gastric, fatal by pulmonary embolism, 79; of the œsophagus, Dr. Lindsay on, 266, 465.
Ulnæ, pathological, Dr. Knott on, 69.
University of Ireland, Royal, Calendar, *Rev.*, 441.
Uterine—artery—aneurysm of the, 221; and extra-uterine pregnancy, 240; cancer, Dr. More Madden on, 401.

Veeder, Dr. M. A., relative importance of flies and water supply in spreading disease, 447.
Ventnor, Royal National Hospital for Consumption at, 159.
Verworn, Dr. Max, General Physiology, *Rev.*, 430.
Vital statistics, 74, 150, 236, 312, 393, 467.
Von Hofmann, Professor E., Atlas of legal medicine, *Rev.*, 138.

Wallace, Dr. James R.—medical register and directory of the Indian Empire, *Rev.*, 59; undisfiguring union of fractured thigh-bone, 63.
Water—sterilisation of, by filtration, 444; relative importance of flies and, in spreading disease, 447.
Wells, Dr. William H., manual of the diseases of children, *Rev.*, 289.
Whitla, Dr. William, pneumonia, 281.
Whooping-cough, 378.
Williams, Dr. Dawson, medical diseases of infancy and childhood, *Rev.*, 52.
Williamson, Dr. R. T., diabetes mellitus, *Rev.*, 45.
Wilson, Dr. George, hygiene and sanitary science, *Rev.*, 371.
Wilson, Dr. T. H., exhibition of specimens, 72.
Women, recent works on diseases of, *Rev.*, 53.
Works on—diseases of women, *Rev.*, 53; histology, *Rev.*, 133, 134; bacteriology, *Rev.*, 288.
Wright's Visiting Lists, *Rev.*, 62.

X-ray work, Dr. W. S. Haughton on, 145.

Year-book of the Scientific and Learned Societies of Great Britain and Ireland, *Rev.*, 126.

Zangger, Dr. Theodore, meningitis followed by recovery, 428.
Zuckerkandl, Dr. Otto, Atlas of operative surgery, *Rev.*, 370.

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41C
348